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FIVE YEAR REPORT ON THE MEDICAL FOLLOW UP OF MARSHALLESE RECEIVING SPECIAL MEDICAL CARE RELATED TO 1954 BRAVO FALLOUT RADIATION (JANUARY 1992 - 1996)

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DISCLAIMER

FOREWORD

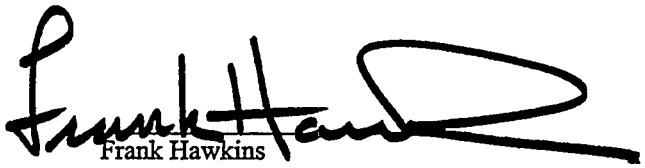
As part of the United States atmospheric nuclear weapons testing program between 1946 and 1958, 23 nuclear devices were detonated at the Bikini Atoll and 43 nuclear devices were detonated at the Enewetak Atoll. A 1954 United States thermonuclear weapons test, code named "Bravo" was conducted at the Bikini Atoll and produced a nuclear yield much higher than expected. As a result, the levels and dispersion of the radioactive fallout from Bravo were significantly greater than originally expected, resulting in radioactive fallout on the inhabited atolls of Rongelap and Utrik. The Rongelap and Utrik inhabitants were evacuated from their contaminated atolls, within 48 and 72 hours, respectively, after the Bravo test. The original population directly exposed to the fallout from Bravo consisted of 241 individuals and 12 fetuses. Adsorbed dose estimates for the exposed population were on the order of 0.11 to 1.9 Gray (11 to 190 Rad) to the whole body and from 1.9 to 200 Gray (190 to 20,000 Rad) to the thyroid.

Public Law 99-239 mandated that the United States would "...continue to provide special medical care and logistical support thereto for the remaining 174 members of the population of Rongelap and Utrik who were exposed to radiation resulting from the 1954 United States thermonuclear Bravo test...". The Department of Energy (DOE) implemented this Congressional mandate, for the period of this report, through a contract with the Brookhaven National Laboratory.

The purpose of the Marshall Islands Medical Program is to provide medical care and treatment to the Congressionally-mandated groups of Rongelap and Utrik who were exposed to fallout from the 1954 Bravo test. As of December 1998, the original Congressionally-mandated population consisted of 130 individuals.

The program offers, on a voluntary basis, an annual physical examination to these individuals, as well as annual physical examinations to volunteer comparison individuals. Medical surveillance includes a complete annual physical examination (based on American Cancer Society criteria) by a variety of specialists including gastroenterologists, hematologists, obstetricians/gynecologists, endocrinologists, oncologists, radiologists, cardiologists, nephrologists, pulmonologists, and rheumatologists.

This, the 17th report of the Marshall Islands Program, provides information concerning the medical status of the 253 Marshallese exposed to the fallout from the 1954 Bravo test.



Frank Hawkins
Director
Office of International
Health Programs

DEDICATION AND APPRECIATION

This report is dedicated to all of the patients who have participated for the past 44 years in the medical program. We wish to thank them for their voluntary participation in one of the longest running patient care programs in the history of medical practice, and sincerely appreciate their commitment. We wish them continued success in reaching their future health objectives.

The Marshall Islands Medical Program is deeply indebted to the many outstanding physicians who, despite the inevitable personal inconvenience, participated in the medical team visits of 1992-1996. It is fair to say that they were the heart of the program.

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5-Year Report

INTRODUCTION

This is the 17th and final report of the Marshall Islands Medical Program as carried out by the Brookhaven National Laboratory (BNL). The purpose of these publications has been to provide information on the medical status of 253 Marshallese exposed to radiation fallout in 1954. The medical program fulfills a commitment to disclose unique medical information relevant to public health. Details of the Bravo thermonuclear accident that caused the exposure have been published. A 1955 article in the Journal of the American Medical Association, which described the acute medical effects on the population that required special medical care, remains a definitive and relevant description of events (Cronkite et al., 1955).

Marshallese participation in this Congressionally mandated program is voluntary. Throughout the 44 years of the program, each participating individual's relevant medical findings, laboratory data, disease morbidity, and mortality have been published in the BNL reports in a manner preserving patient confidentiality. In each report, there has been an attempt to interpret these findings and to infer the role of radiation exposure in their development. An equally important aspect of the reports has been the presentation of data that allows for analyses of the medical consequences of the Marshallese exposure.

PATIENT GROUPS

The Marshallese population mandated (the mandated group) under the Compact of Free Association Act (P.L. 99-239), originally comprised 64 persons on Rongelap Atoll who had received an estimated 190 rad (190 cGy) of whole-body external gamma radiation, 18 on Ailinginae Atoll (Sifo Island) who received 110 rad (110 cGy), and 159 on Utrik Atoll who received 11 rad (11 cGy). For the purpose of this report, the Rongelap and Ailinginae patients are treated as one and referred to as the Rongelap group because the persons on Ailinginae were Rongelap inhabitants temporarily residing on this nearby atoll. The differences in the dose due to exposure to radioiodines were dependent on the relative distance of the atolls and islands from the Bravo test site. At the time of the accident, there were 12 pregnant women (3 on Rongelap, 1 on Ailinginae, and 8 on Utrik), each of whom received whole-body doses equivalent to doses received by the other inhabitants of their respective atolls. The twelve individuals who were exposed in utero were also considered part of the mandated group after birth. Due to the presence of radioiodines in the fallout, the thyroid gland received an exposure that was much greater than the whole-body dose; the dose due to radioiodine exposure was a function of the individual's age at the time of exposure (Lessard et al., 1985).

In 1957, a group of 86 volunteer comparison individuals from Rongelap were selected to match the mandated group by gender and age (Conard et al., 1958). A second volunteer comparison group was subsequently initiated and matched by age and gender to the mandated group. The second comparison group was statistically similar to the Rongelap and Utrik groups. Both these groups are listed in this report as the comparison group. As in previous reports, it is the expanded volunteer non-mandated group which is used for comparisons of year-to-year medical events and causes of death. The survival rates of the mandated and volunteer unmandated groups are also compared.

THE MARSHALL ISLANDS MEDICAL PROGRAM

Program mandate:

The mandate of the program, as required by the U.S. Congress in 1980 (PL 96-205, Sec. 106 (a)), specified "...a program of medical care and treatment....for any injury, illness, or condition which may be the result directly or indirectly of such nuclear weapons testing program." Subsequently, in 1985, the Compact of Free Association between the U.S. and the Republic of the Marshall Islands (RMI) allowed the Marshallese to manage their own radiation injury compensation. However, in response to a request from the RMI, a subsidiary agreement permitted the BNL medical program to continue supplemental local health care for the mandated persons. Specifically, P.L. 99-239 states: "..the President....shall continue to provide special medical care and logistical support thereto for the remaining 174 members of the population of Rongelap and Utrik who were exposed to radiation resulting from the 1954 United States thermonuclear Bravo test, pursuant to Public Laws 95-134 and 96-205."

Program administration and physician volunteers:

The Marshall Islands Medical Program and its medical missions to the Marshall Islands were based at BNL since the inception of the program. The program's staff included a physician-director, an administrator, a BNL medical associate, and a Marshallese laboratory technician on Ebeye. The

medical missions were usually conducted in the spring and fall of each year; a variety of physicians were recruited to be part of the medical team. They were skilled volunteers, primarily selected from the staff of university-affiliated or government hospitals, and often had past experience with the program. At the time of the initial medical examination, Dr. Jacob Robbins, (Chief of the Endocrinology Section, Genetics and Biochemistry Branch, National Institutes of Health, Bethesda, MD.) provided guidance and management of the program's thyroid disease aspects.

Currently, Bechtel Nevada (under DOE contract) provides logistical support to the medical program. Previously, this support had been conducted by Raytheon Services Nevada until 1995. Logistical support involves all transport, housing, and accommodation arrangements for the staff and patients traveling between Honolulu, Hawaii and the entire Marshall Islands. Additionally, Bechtel Nevada was involved in converting the program from a vessel-based to a land-based program, working closely with the U.S. Army Kwajalein Atoll personnel and executing the necessary structural changes to the medical trailers (adjacent to Kwajalein Hospital) which currently houses the medical program. The proximity to Kwajalein Hospital has eliminated the need for duplicate services that were necessary for the vessel-based program. Since 1996, all radiologic services have been performed by the Kwajalein personnel; most of the routine hematology is now completed in the Kwajalein Hospital laboratory. On request, the Marshall Islands government provides nurses, translators, and other health care workers. Bechtel Nevada offices on Majuro and Kwajalein oversee local staff.

Program policies:

The Marshall Islands Medical Program was created for the benefit of the mandated Marshallese patients. It was a program of radiation-related disease surveillance consisting of periodic examination and treatment of disease. Periodically, clinical investigations had been carried out by the program; the intent of these investigations was to identify present or future threats to the health of the mandated Marshallese patients, hopefully in time to prevent or limit morbidity and mortality. Based on the medical program's early findings of numerous thyroid nodules in the mandated group, thyroid hormone suppression was initiated for the Rongelap group in 1965 in an attempt to prevent thyroid nodules/carcinoma. It is possible that this prophylaxis has met with some success. As discussed in detail later in this paper, thyroid ultrasound examinations were initiated in 1994 as a means of detecting early changes in the evolution of thyroid nodules.

The Marshall Islands Medical Program provided medical care to the mandated group by visiting the islands where most subjects resided: namely, Majuro, Ebeye, Mejatto and Utrik. In addition, the medical team provided health care monitoring and surveillance for all comparison group patients.

Any individual of the special medical care group whose medical findings suggested a malignant neoplasm or other radiation-related disease was referred to secondary or tertiary medical facilities for definitive evaluation and therapy. Those persons with problems that could be effectively managed on Majuro were referred to the Marshallese Health Services. Those requiring a more extensive evaluation were referred to hospitals in Honolulu. Individuals needing referral for non-radiation related problems were sent to the Marshallese Health Service on their island of residence, where treatment was initiated.

Interim care:

During the period between the two medical missions conducted by the Marshall Islands Medical Program, the continuity of health care for the mandated and comparison groups was carried out by the Marshallese Government Health Services, which is a national health care program involving two hospitals on the most populated islands, Majuro and Ebeye. A network of clinics scattered over some 20 atolls also assisted in health care. This network of health care providers, which included physicians and public health care workers, served the entire population of the Marshall Islands, which numbers over 64,000 people. Interim care was also provided by the physicians and health workers belonging to the 177 Health Care Program. The 177 Health Care Program, operated by the Sisters of Mercy, is currently responsible for the health care of an estimated 12,600 people. Based on Majuro Atoll, the 177 Health Care Program provides primary health care to the four atoll communities of Enewetak, Rongelap, Bikini and Utrik.

At the end of each medical session, with the permission of the examinees, copies of all examination and laboratory data were delivered to the Marshall Islands Health Service hospitals on Majuro and Ebeye and to the physicians of the 177 Health Care Program. In addition, copies of physical examinations and laboratory test results completed at Kwajalein were provided to the patients themselves, thus facilitating the exchange of thorough medical information.

Consultations and educational activities:

While providing medical surveillance to the mandated and comparison groups, the medical program physicians came into contact with family members of the mandated and other island inhabitants. It was the policy of the Department of Energy to support the medical program in its efforts to provide consultations and limited treatment to these individuals on the basis of humanitarian need and as resources permitted. Consultations were initially provided by the program staff as they visited islands during the course of the two missions. When the program became land-based at Kwajalein, consultative services were provided almost exclusively for the residents of Ebeye and the Marshallese employees working at the U.S. Army Kwajalein Atoll base on Kwajalein. The medical program also provided in-house consultations by sending specialists to the Ebeye hospital to accompany local Ebeye physicians on rounds. During each mission, lectures given by team physicians contributed to the continuing medical education of the Kwajalein and Ebeye hospital staff and physicians.

Program oversight:

The Marshall Islands Medical Program, as a satellite clinic of the Clinical Research Center, Brookhaven National Laboratory, was accredited by the Joint Commission on Accreditation of Healthcare Organizations, a nationwide organization setting and monitoring performance standards for institutions dispensing medical care. By voluntarily participating in the accreditation process, the Marshall Islands Medical Program received a valuable and impartial external review of its policies and procedures, as well as an assessment of the provided services. Laboratory and radiological services, medical records, patient satisfaction, pharmaceutical services, and clinical competence of physicians were among the many items reviewed by the Joint Commission. Guidelines and questionnaires were developed to generate the information necessary for compliance with the Joint Commission's requirements.

Program operations and procedures:

Since the mandated group needed to be considered at increased risk for malignant disease (as a late complication of radiation exposure), the medical program installed a cancer-oriented annual health evaluation. The examinations followed the guidelines of the American Cancer Society and included a medical history, complete physical examination, annual pelvic examinations and Papanicolaou smears (PAP smears) on women, annual mammography (offered to all women forty years of age or older), annual prostate specific antigen (PSA) tests on all males, blood count, urinalysis, stool testing for occult blood, and flexible sigmoidoscopy (every three years for persons fifty years of age or older.) Advice on self-detection of lesions and on decreasing the risk factors for cancer was provided by printed informational materials and discussions with the public health personnel who were part of the medical team. The public health personnel also developed informational materials in the local language documenting the prevention of common communicable diseases, such as tuberculosis and acquired immune deficiency syndrome, and non-radiogenic diseases, such as diabetes and hypertension. Ophthalmologic examinations were provided by the Marshall Islands Health Services since ophthalmologists had not accompanied the medical team in the past four years. As mandated individuals were also considered at increased risk for certain endocrine problems, they received annual thyroid function blood tests and thyroid examinations by a specialist in endocrinology or thyroid surgery. Since 1994, when the thyroid ultrasound program was initiated, ultrasound-guided fine needle aspirations (FNAs) had been included as part of the surveillance, and were performed on patients with palpable nodules, or nodules greater than 10 mm in diameter. Annually, thyroglobulin determinations were made on all subjects as clinical factors warranted, such as a history of thyroid cancer, or post thyroid lesion surgery. Other serologic tests were performed on a regular basis in an attempt at early detection of malignant nonthyroidal lesions. These included serum protein electrophoresis, calcium, prolactin, and alpha-fetoprotein levels on persons known to have positive Hepatitis B surface antigens. There was also ongoing immune competency monitoring, since the mandated persons may have been at increased risk of acquiring infectious diseases.

While the program was vessel-based, special procedures (such as thyroid ultrasound and sigmoidoscopy or colonoscopy) were performed in two hospital rooms dedicated to these purposes. Some patients were examined at dispensaries on Mejatto and Utrik, and home visits were arranged for the elderly and infirm who preferred not to be transported to the ship or flown to Kwajalein for the complete examination.

Clinical laboratory services for the missions were performed by several BNL technicians with support

from personnel of the Kwajalein Hospital and Health Services of the RMI. Routine hematology testing was performed on a J.T. Baker 5000 electronic counter and, beginning in the fall of 1989, on a Serono Baker 9000 RX automatic 8-parameter cell counter. Leukocyte differentials and platelet counts were part of each evaluation. Clinical chemistry tests were performed on Eastman Kodak EktaChem DT60, DTSC or DTE analyzers. These analyzers provided a wide variety of basic chemistry tests with a small amount of disposable waste. Urinalysis included a dipstick examination and, when indicated, microscopic analysis. Stool exams were performed at physicians' request for identification of parasites and occult blood.

Roentgenographic services on board the vessel, Offshore Venture, were provided using a dedicated mammography unit (beginning in 1995, mammography was performed at the U.S. Army Hospital on Kwajalein Island) and a standard x-ray unit manufactured by the Bennett Corporation, Long Island, NY. X-ray interpretation was done at the time of examination. However, if no radiologist was part of the medical team, the x-ray films were returned to BNL and then referred to a consultant radiologist, Dr. Harold Atkins at the State University of New York, Stony Brook. Once the program was land-based, radiographic tests and mammograms were performed using the GE units located at Kwajalein Hospital. A volunteer radiologist physician always accompanied the medical team, eliminating the need for x-rays to be sent to the U.S. for review.

A portable battery powered electrocardiograph machine was available. Electrocardiogram interpretation was done at the time of examination, with a copy often given to the patient. All electrocardiograms were subsequently returned to BNL and then referred to a consultant cardiologist (Dr. M. Zema) at Brookhaven Memorial Hospital on Long Island, NY, for definitive analysis.

A General Electric thyroid ultrasound machine was purchased for the detection of thyroid nodules and used for ultrasound-guided fine needle aspiration of thyroid nodules suspected of malignancy. A second ultrasound machine (a Hewlett-Packard Sonos 100) was available for assessment of such diverse items or factors as abdominal pain, hematuria, gestational age, and cardiac disease. It was used only under the guidance of a radiologist or subspecialist physician with expertise in ultrasound examination.

Sera collected during the routine physical examinations were analyzed at the time of patient examination, as clinically indicated. The remainder were frozen for further testing upon return to BNL. The latter tests were performed at commercial laboratories. One of these referral laboratories, Labcorp, of Garden City, New York carried out all routine and special chemistries involving thyroid hormone analysis. Labcorp also was responsible for the PAP smears. All other cytology and pathology was sent to the Pathology Department, State University of New York at Stony Brook, for analysis of thyroid biopsy specimens and special cytology for GI or GYN biopsy specimens.

The samples analyzed by the BNL staff were subject to a laboratory environment with quality control and quality assurance and involved routine calibration, maintenance, and monitoring of all instrumentation. Daily tri-level analysis of reference materials was performed on the hematology analyzer. The chemistry analyzer was calibrated prior to each mission, and bi-level quality control samples were run on all analyses. Pursuant to the enactment of the Clinical Laboratory Improvement Analysis Legislation, the program subscribed to Wisconsin State Hygiene Laboratory proficiency testing. When necessary, laboratory instrumentation was inspected and repaired by company service representatives. Other instrumentation, such as sphygmomanometers, electrocardiograph machines, and doppler units, was periodically calibrated and had routine preventative maintenance performed between missions at BNL.

Additional quality assurance methods included the use of patient questionnaires. These questionnaires - translated into Marshallese - solicited criticism and advice for improving the medical program's operation. One important quality assurance mechanism was the mission's use of volunteer physicians from across the United States. The on-site advice, commentary, and criticism of these physicians helped to maintain the high standards of patient care. Additionally, all physicians participated in on-site peer review. Finally, the results of these and other mechanisms of quality assurance were reviewed by the BNL Clinical Research Center Quality Assurance and Care Committee. Also included in that review was the appropriateness of using anti-infective agents; a certified medical records consultant randomly reviewed approximately 20 percent of the records for accuracy and completeness.

Staff:

The volunteer medical staff was drawn from excellent medical centers and private practices throughout the United States. During the past few years, each mission was successfully manned by a core of physicians comprising the medical director (internal

medicine), an endocrinologist, another internist or family practitioner, a gynecologist and a radiologist. These physicians provided the program with a wide range of up-to-date clinical experience and perspective that contributed to better patient care. Appendix A lists the physicians by their respective specialties, as well as medical team personnel involved in the 1992-1996 missions.

CLINICAL FOLLOW-UP FOR THE 5 YEAR PERIOD

Patient participation:

As previously indicated, patient participation in the Marshall Islands Medical Program was entirely voluntary. Prior to the arrival of the medical team in the Marshall Islands, local newspapers and radio stations announced the imminent arrival of the medical groups and the location of the proposed examination sites. These announcements permitted the patients to make appropriate arrangements for their visits. For the first four years of this reporting period - when the program was vessel-based - the boat docked in Majuro port, where patients were scheduled for their medical evaluations. At the end of approximately one week, the Offshore Venture departed for Kwajalein. The vessel, with on-board medical facilities, docked at Ebeye, where the medical staff evaluated the mandated and comparison groups residing on Ebeye. The boat also made a two-week trip to the outer islands of Utrik and Mejatto. The total duration of the mission was approximately 4-5 weeks.

1992-1996 Marshall Islands Medical Program

At the beginning of the 1992 reporting period, there were an estimated 154 patients in the mandated groups and 113 patients in the volunteer groups. These patients were given the opportunity to return on an annual basis; the actual percentage of mandated and comparison patients who availed themselves of these services is listed in Table 1. Patient acceptance of the transference of care from vessel-based to land-based was enthusiastic, as patients were afforded more flexibility in scheduling appointments. During vessel-based examinations, a patient who had to be seen in Majuro only had a total of seven days to schedule a visit. Since the land-based program lasted approximately four weeks, patients had more time to schedule visits and were more likely to complete a physical examination for that year. Overall, the acceptance of the land-based program by all of the patients was extremely positive. They were able to receive reports of their most recent blood tests done on Kwajalein. At the end of each mission, copies of these reports were also sent to the respective primary care physicians on Ebeye, Majuro or the outer islands.

Patients who reside outside of the Marshall Islands are not necessarily represented in the patient group examined during the five-year period. These patients are predominantly located on the islands of Hawaii; some have migrated to mainland USA. All patients were notified about pending missions; however, they may or may not have availed themselves of these services. Appropriate arrangements had been made for these non-resident patients residing in Hawaii to receive care at a tertiary center in Honolulu or elsewhere.

Post-1996 Marshall Islands Medical Program

As previously noted, since 1996 the program has been land-based and located at Kwajalein Hospital. Two trailers, refurbished for the purpose of the medical program, included a male examining room, a female examining room, a gynecological examining room, an endocrinology area, laboratory and pharmacy facilities, a waiting area for the patients, and a room for administrative purposes. Two special procedure rooms were leased from the hospital – one for performing sigmoidoscopy/colonoscopy procedures and one for a thyroid ultrasound unit.

In addition, the hospital laboratory and radiological services were made available for CBC, chemistries and urinalysis and other routine tests. The hospital technician who performed mammograms and x-rays was also available to schedule these tests. Thyroid ultrasound was done by a specially trained technician who had been subcontracted for each of the medical missions for the past five years.

Examinations and laboratory testing:

Generally, in keeping with the preservation of cultural sensitivities and individual wishes, male patients were examined by a male physician and female patients by a female physician. Blood was drawn for routine and special chemistries, and other tests deemed necessary were conducted at the hospital. The land-based program allowed for greater ease in obtaining tests and prevented duplication of the laboratory equipment or personnel.

It should be noted that, once the mission was land-based at Kwajalein, the routine and screening mammogram procedures increased dramatically, due to the availability of an approved mammography site.

TABLE 1. Total number of patients seen each year between 1992 and 1996.

GROUP	Number	1992	1993	1994	1995	1996
Mandated*	154	92%	84%	83%	83%	84%
Comparison	113	79%	65%	61%	55%	79%

*This includes patients from Rongelap and Utrik combined at the beginning of fiscal year 1992.

Additionally, a radiologist began accompanying each mission, so that an immediate mammogram reading was available, greatly facilitating female patient care, as mammograms were accepted by virtually all of the women. Additionally, a gastroenterologist accompanied the missions on a regular basis for the primary purpose of performing routine flexible sigmoidoscopies; this physician was available for consultations, and after 1995, performed colonoscopies and upper endoscopies at U.S. Army Hospital on Kwajalein Island, thereby decreasing the need to refer patients off-island to Honolulu.

The total number of special procedures and mammographic tests completed for the entire duration of the Five-Year Report are listed in Table 2.

Specific medical conditions - thyroid nodules:

During the transition between vessel-based and land-based operations, one of the major emphases for the Marshall Islands Medical Program was to institute the detection of thyroid nodules by use of the ultrasound technique. The initial ultrasound equipment was supplemented by a 7.5 megahertz ultrasound machine from General Electric, which was used predominantly for the detection of thyroid nodules. At the end of the previous five-year report (which ended in 1991), there were several questions left unanswered regarding the thyroid nodules:

-- will the entire mandated and volunteer comparison groups remained susceptible to new nodule formation?

-- what is the role of gender in the development of thyroid nodules?

-- what are the roles of radiation dosage and age in relation to the detection of nodules?

-- was the nodule formation induced as a function of exposure to previous radiation?

-- did the radiation increase the incidence of occult carcinomas?

Most of these questions were addressed in the previously-cited Cronkite paper. A summary of some of the important tables from that paper follows.

During the spring and fall 1994 surveys, thyroid ultrasounds were done on a total of 164 patients: 117 from the mandated group, and 47 from the volunteer comparison groups (Table 3). The total incidence of thyroid nodules detected in all of these groups was 25.0%. A total of 117 of these subjects (non-surgical patients) had not undergone any surgical procedures. Of these, 28.2% had developed thyroid nodules detectable by ultrasound.

The percentage of patients who had nodules greater than 10 mm. in diameter (the criteria for either an FNA or surgical exploration) was 10.4% for the total population of 164 patients, and 12.8% when the 117 non-surgical patients were taken into consideration. The number of patients who had nodules greater than 10 mm in diameter detected by ultrasound during the 1994 survey is depicted in Table 4.

All of these findings have been published in a recent publication, *Thyroid Disease Among the Rongelap and Utrik Population -- An Update* (Howard, etal., 1997). The initial thyroid ultrasound done in 1994 served as the basis for the majority of patients who came for annual visits.

In 1995 and 1996, an additional 230 ultrasounds were done on all patients from Rongelap, Utrik, and the comparison group. These are reported in Tables 5 and 6.

During the 1995 and 1996 medical missions, a total of 240 ultrasounds were done on 113 patients. Of the 50 patients from the mandated group from Rongelap tested in 1995 and 1996, 22 subjects (or 44 percent) had detectable thyroid nodules on ultrasound. Of the 105 patients from the mandated group from Utrik testing in 1995 and 1996, 50 subjects (or 47 percent) had detectable thyroid nodules on ultrasound).

These numbers were similar between the two groups. In addition, 41 subjects (or 44 percent) of the comparison group also had nodules. Therefore, there does not appear to be any difference in detectable nodules between the mandated group and the volunteer comparison group. Of the subjects seen between 1995 and 1996, a total of 62 percent of the women were on thyroid suppression therapy. A total of 51 percent of

TABLE 2. Number of procedures done each year between 1992-1996.

Procedure	1992	1993	1994	1995	1996
X-rays	40	47	173	118	90
Mammograms	20	24	39	47	64
GI procedures	--	23	30	44	35

TABLE 3. Percentage of subjects in each patient group with thyroid nodules during the 1994 survey.

	All Patients			Non Surgical Patients		
	Total Patients	Patients with nodules*	Percent	Total Patients	Patients with nodules*	Percent
Rongelap	47	6	28.7	23	5	19.7
Utrik	70	23	42.7	55	17	47.0
Comparison	47	12	28.6	39	11	33.3
Total	164	42	25.0	117	33	28.2

*Nodules detected only by ultrasound.

TABLE 4. Number of patients who had nodules greater than 10 mm in diameter, detected by ultrasound, during the 1994 survey.

	All Patients Numbers	Non Surgical Patients Number
Rongelap	3	2
Utrik	9	8
Comparison	5	5

TABLE 5. Total number of subjects with thyroid nodules detected on ultrasound in 1995 - 1996.

Gender	Mandated Group	Mandated Group	Comparison
	Rongelap	Utrik	Rongelap
Females	13	26	20
Males	9	24	21
TOTAL	22	50	41

TABLE 6. Total Number of ultrasounds performed on 113 patients which showed detectable nodules.

	1995		1996	
	Females	Males	Females	Males
Number	44	54	85	57
<10 mm	34	39	60	43
>10 mm	19	23	28	21
<10 & >10 mm	9	8	13	7
Mean # of nodules	1.68	1.44	1.59	1.47

the men were on thyroid suppression therapy. The thyroid stimulating hormone (TSH) levels in all of these patients between 1995 and 1996 were within normal limits. The availability of the ultrasound equipment also permitted FNA of the thyroid at the medical hospital base in Kwajalein. Table 7 lists all patients with nondiagnostic or suspicious FNAs that were referred for surveys. Initial success with thyroid FNAs was minimal while the program was still vessel-based on the Offshore Venture. Since the program was installed in the trailers on the Kwajalein Hospital site, greater usage of the thyroid ultrasound technique for biopsies occurred. As a result, fewer referrals were sent to Honolulu.

Histologic definitions:

Once the FNAs were completed, the specimens were sent back to New York for histologic diagnosis. If surgery was necessary, patients were referred to the contract tertiary care center, Straub Clinic and Hospital, in Honolulu. Histological classification occurred according to the pathology group at the Straub Clinic and Hospital.

The patients listed in Table 8 had surgery between 1992 and 1996. All of the surgical procedures were performed at the Straub Clinic and Hospital.

The thyroid ultrasound and pathology findings are summarized below:

The non-neoplastic adenomatous nodules were associated with higher doses of radiation, while neoplastic nodules developed in individuals who received lower doses of radiation. Women generally tended to have a larger number of palpable thyroid nodules than men. There were no significant differences between the thyroid nodules detected by ultrasound in the Rongelap and Utrik mandated communities, as compared to the volunteer group. Eight of the mandated patients were referred for surgical excision of the thyroid nodules, which were only detectable by ultrasound (proving the thyroid ultrasound to be a solid means of detecting small non-palpable nodules). Of these patients, one had a hemorrhagic cyst, three had adenomatous goiters, two had follicular adenomas, one had adenomatous hyperplasia, and one had adenomatous hyperplasia with occult papillary carcinoma. The thyroglobulin levels in the patient who had occult papillary carcinaoma were

TABLE 7. FNAs Performed 1992-1996 (* next to subject indicates patient is also included in Surgery table which is Table 8). All nondiagnostic or suspicious FNAs were referred for surgery.

Subject	Date of FNA	Island Group
No. 1	1996	Mandated
No. 2	1995	Mandated
No. 3*	1995	Mandated
No. 4	1996	Mandated
No. 5	1995	Mandated
No. 6	1994	Mandated
No. 7*	1994	Mandated
No. 8	1996 (twice)	Mandated
No. 9	1996	Comparison
No. 10	1995 & 1996	Comparison
No. 11	1996	Comparison
No. 12	1996	Comparison
No. 13	1994	Comparison
No. 14	1994 & 1995	Comparison
No. 15	1994	Comparison
No. 16	1994	Comparison
No. 17	1995	Comparison
No. 18	1995 & twice in 1996	Comparison
No. 19*	1994, 1995, & 1996	Mandated
No. 20	1996	Mandated
No. 21	1996 (twice)	Mandated
No. 22	1996	Mandated
No. 23	1996 (twice)	Mandated
No. 24*	1994 (twice)	Mandated
No. 25	1994	Mandated
No. 26	1994 & 1996	Mandated
No. 27*	1994	Mandated

TABLE 7 *(continued)*. FNAs Performed 1992-1996 (* next to subject indicates patient is also included in Surgery table which is Table 8). All nondiagnostic or suspicious FNAs were referred for surgery.

Subject	Date of FNA	Island Group
No. 28*	1994	Mandated
No. 29*	By Japanese	Mandated
No. 30	1994	Mandated
No. 31	1995 & 1996	Mandated
No. 32	1994 & 1995	Mandated
No. 33	1995	Comparison
No. 34	1994	Comparison

TABLE 8. Thyroid Surgery Patients 1992-1996.

Subject	Date of Surgery	Histopathologic Diagnosis	Island Group
No. 1	1994	Follicular Adenoma	Mandated
No. 2	1996	Adenomatous Hyperplasia	Mandated
No. 3	1994	Atypical Follicular Cells, No Thyroid Tissue	Mandated
No. 4	1996	Adenomatous Goiter	Mandated
No. 5	1994	Adenomatous Goiter	Mandated
No. 6	1994	Adenomatous Goiter	Mandated
No. 7	1995	Adenomatous Hyperplasia and Occult Papillary Carcinoma	Mandated
No. 8	1995	Follicular Adenoma, Focal Benign Hyalinized Nodule, Focal Benign Adenomatous Hyperplasia	Mandated

within normal limits. An interesting finding was that thyroid suppression had been initiated in the Rongelap group earlier in the course of the Marshall Islands Medical Program. Interestingly, the patients in the Rongelap mandated group had a lower incidence of ultrasound detectable thyroid nodules, as compared to the Utrik group. Also of interest was the fact that of the five patients who had thyroid tissue at surgery, four were from Utrik and only one from Rongelap. It is noteworthy that thyroid suppression does appear to have either reduced the incidence of thyroid cancers due to continued suppression of the TSH, or reduced the incidence of new thyroid cancers in the remnant thyroid tissue. The higher percentage of nodules detected between 1995 and 1996 is a reflection of the increased number of patients that were followed up during these two years. An incidence of approximately 28% in the group that had been studied up to 1994 was previously reported.

In either event, patients from Utrik did not have or need many surgical procedures, and had not been previously suppressed with thyroid hormone replacement. Therefore, the findings of a higher incidence of thyroid surgery in this group may simply

be a reflection of the slow, but benign, process of nodule formation, which appears to be inevitable in virtually all endocrine tissues.

Several studies have shown that the addition of L-thyroxine to patients who are being treated for benign solitary cold nodules is effective in suppressing the growth of the nodules (LaRosa et al., 1995). It should be noted that none of the thyroid nodules that were detected by ultrasound in the group were palpable. Numerous studies have shown that clinical palpation of the thyroid is less sensitive than thyroid ultrasonography when identifying nodules. The detection limit for most thyroid examinations is a minimum of 1.5 cm in diameter (Tan et al., 1995).

Several long-term studies have been conducted in patients who have previously undergone thyroid surgery and radioactive iodine ablation for papillary thyroid carcinoma. In a long-term study of over 35 years, cumulative recurrence rates of thyroid cancers were less than 9% (Mazzaferri and Jhiang, 1994).

The second major emphasis for this report was to follow up on mammograms in women, both in the mandated and volunteer comparison groups. No mammography was performed in 1994 because it was agreed that the vessel-based unit was not up to current standards. In 1995, arrangements were made with the U.S. Army Hospital on Kwajalein Island to refer all female patients for routine mammography. In 1995, patients requiring diagnostic mammography were referred to the Straub Clinic and Hospital. In 1996, with the inception of the land-based program and the availability of a radiologist, diagnostic mammography was performed at the U.S. Army Hospital on Kwajalein Island. During the course of the five years, palpable nodules were detected on a number of patients. Initially, the majority of these patients were referred off-site to Honolulu for diagnostic biopsies and surgical procedures. These patients were subsequently followed-up through the Straub Clinic and Hospital. In 1996, arrangements were made with the Kwajalein surgical staff to perform routine biopsy procedures, thus creating a reduction in the number of Honolulu referrals. There were a total of 39 referrals made for mammogram-related abnormalities. These patients were referred for surgical procedures or evaluations at Kwajalein or Honolulu. A number of these procedures turned out to be benign, and only one patient was detected to have breast cancer. This patient was treated with radiation therapy in Honolulu, since that was her location of residence.

The third major initiative for this report was to institute the blood tests for PSA for all males who had palpable prostate enlargements. This resulted in approximately eight patients with detectable levels of PSA, who required referrals to the urology services in Honolulu.

Sigmoidoscopies and GI workup:

Sigmoidoscopies were done on the Offshore Venture and at the U.S. Army Hospital on Kwajalein Island. Once the program became land-based, two additional Olympus flexible sigmoidoscopy units were purchased for the medical program. This increased the efficiency of the gastroenterologist's time. Also, it should be noted that both units were in compliance with the increasingly stringent sterilization requirements. The sigmoidoscopies, colonoscopies and proctoscopic examinations were conducted either by the visiting gastroenterologist, or by one of the surgeons located permanently on Kwajalein.

Hepatitis B surface antigen was detectable in a number of patients, who were routinely monitored with alphafetoprotein for the development of any hepatocellular problems. This was an ongoing procedure, and patients were treated annually with alphafetoprotein levels, hepatic ultrasound, and liver biopsies, as indicated.

Hematological evaluations were continued when appropriate by means of routine blood counts, platelet counts, serum protein electrophoresis, and bone marrow aspirations. The results of the CBC's and chemistries are listed in Appendix B.

Referrals to the Tertiary Medical Care Center and to the RMI Government:

As previously indicated, the number of referrals to the Tertiary Medical Care Center in Honolulu decreased after the program became land-based. The overall referrals for various patients are listed in Table 9. In general, the thyroid-related referrals were mainly to repeat thyroid FNAs, to perform surgical excision of thyroid nodules, and to follow up with radioactive iodine scans for those patients who had previous thyroid cancers.

Patient Deaths During 1992 - 1996:

There were a total of 25 of the original 253 mandated patients and 14 of the 227 volunteer comparison patients who expired during this reporting period. The total percentage of mandated patients who expired during this reporting period was 9.99%; the expiration percentage of the volunteer comparison patients who returned for annual visits was 6.2%. After 42 years, there still continue to be few differences

TABLE 9. Referrals to the Tertiary Care Center and to the RMI Government.

Diseases/Conditions	No. of Subjects	% of Total
Anemia	26	7
Back pain	1	<1
Breast	39	11
Cardiology	3	1
Dental	2	1
Diabetes	13	4
Endocrine visits	10	3
Gastroenterology	73	21
Gynecology	30	9
Hypertension	10	3
Leg cramps	1	<1
Non-thyroid neck mass	3	1
Neurological	2	1
Ophthalmological	12	3
Osteoarthritis	2	1
Pituitary tumor	1	<1
Pulmonary	18	5
Skin lesions	1	<1
Surgery (non-thyroid)	5	1
Thyroid	70	20
Urology	26	7
Total referrals	348	100%

between the percentage of patients in the mandated groups compared to the gender and age-matched volunteer patients. It should be noted that because many patients lived on atolls or outer islands located a great distance from major population centers, the cause of death is usually not recorded and, therefore, unknown. Individual summaries for each of the patients who expired within each group (mandated and volunteer comparison) are shown below:

Deceased patients in the mandated groups are specified by island: Rongelap (R) and Utrik (U).

Subject No. 1 (R). This was an 82-year old woman whose main symptoms were inability to walk, B12 deficiency, and probably mild myelodysplastic syndrome. She also had persistent psoriasis and hypothyroidism. She was being treated with Synthroid 200 mcg daily and B12 injections for the anemia. The cause of death is unknown.

Subject No. 2 (R). This patient was a 60-year old male who had status post thyroidectomy and laryngectomy for squamous cell carcinoma. His laryngeal carcinoma developed in 1992, when he first had symptoms of progressive hoarseness for approximately 8 months. The diagnosis was made by laryngoscopy and the findings were of multiple nodules among the vocal chords. He also received chemotherapy for metastatic laryngeal carcinoma to the right upper lobe of the lung. His thyroidectomy was in 1977 for a benign disease. He had a history of hypothyroidism for which he was being treated with Synthroid 200 mcg daily. The cause of death was not reported, but may have been due to metastatic laryngeal carcinoma to the right upper lobe of the lung.

Subject No. 3 (R). This was an 82-year old male who was last seen in 1992 complaining of mild back pain which was due to an injury. His physical examination was unremarkable at that time, and his only problems were the presence of bilateral cataracts and stable anemia. He also had very mild renal insufficiency as evidence of a slight increase in serum creatinine. The patient was also known to have hereditary neuropathy. The cause of his death is unknown.

Subject No. 4 (R). This was a 60-year old male who was seen in March 1996. He had a history of blood in his stools for which he was being examined by colonoscopy. This test found no evidence of malignancy, and no identifiable lesions were visible. The patient had mild renal insufficiency as evidence of slight increase in serum creatinine and B12 deficiency. He was also noted to have an abnormal PSA. He was also being treated with Vasotec for mild hypertension. The immediate cause of his death is unknown.

Subject No. 5 (R). This was a 64-year old male who was last seen in March 1994, and his history included hypothyroidism for which he received Synthroid 200 mcg daily. His past medical history included a mild degree of renal impairment, and minimal upper GI reflux treated intermittently with Maalox. He was also known to have Hansen's disease with extensive multiple amputations of his fingers and toes. He also had below knee amputation of the right leg also due to Hansen's disease. The cause of his death is unknown.

Subject No. 6 (U). This was a 78-year old female who was last seen in 1995 as a home visit. She had a long standing history of diabetes mellitus and was treated with Micronase 5 mg daily. She was also receiving 100 mcg of Synthroid daily for a prior history of thyroidectomy for benign disease. When she was last seen at home, she was confined to bed and had a low blood pressure, but the rest of the physical exam was unremarkable. The immediate cause of death is unknown.

Subject No. 7 (R). This was a 78-year old male who was last seen in 1992 and expired in 1995. He declined visits to the medical facilities when he was contacted during the missions. When he was last seen, he had a history of decreasing vision and difficulty walking. He had a fixed flexion deformity of his knee and diminished flexion of the spine. He also had hypothyroidism for which he was receiving 200 mcg of Synthroid daily. In 1991, he had been seen at Straub Clinic and Hospital for tuberculosis. He also had a history of cerebral vascular accident with left-sided hemiparesis. The cause of his death is unknown.

Subject No. 8 (U). This was an 80-year old male who was last seen in 1991. The patient had a history of left-sided hemiparesis and infection of his right foot. He had a previous history of left lower extremity below knee amputation. He also had a history of peripheral neuropathy and mild cataracts. The immediate cause of his death was not reported.

Subject No. 9 (U). This was a 92-year old male who expired in Majuro in 1993, due to pneumonia and senility. He was last seen by the medical program in 1992 in a home visit. At that time, his predominant complaints were mild dermatitis, constipation and a pilonidal cyst. He was also found to have benign prostatic hypertrophy. He was given symptomatic treatment at that time with local creams for his skin lesions and Dulcolax for his constipation. He was admitted to Majuro Hospital for a total of five days and expired in the hospital.

Subject No. 10 (U). This was an 89-year old male who had a history of iron deficiency anemia and guaiac positive stool. He was last seen as a referral to Straub Clinic and Hospital for a workup of a large scrotal mass, and low hemoglobin and hematocrit. The patient had surgery for left inguinal hernial repair and left-sided orchiectomy. The pathology report of this specimen indicated that the patient had a Leydig cell tumor with evidence of pulmonary metastases as seen on chest x-ray. The cause of his death was not reported, but may have been due to the metastatic Leydig cell tumor.

Subject No. 11 (U). This was a 45-year old female who was seen by the medical program in March 1993. She had a history of long standing and poorly controlled diabetes mellitus. In May 1990, she had a left breast mass which was found to be benign. This patient was admitted to Majuro Hospital in August 1993, and the immediate cause of her death was reported to be cardiac arrest which was presumed to be due to electrolyte imbalance secondary to chronic diarrhea.

Subject No. 12 (U). This was an 82-year old male who was last seen as a home visit in 1995. The patient expired in March 1996. He had a history of diabetes mellitus with acceptable control, and chronic anemia which was stable. He also had status post right toe amputations due to his diabetes. His diabetes was adequately controlled with Micronase 10 mg daily. His prior history included surgery for benign prostatic hypertrophy in 1980, and surgery for cataracts in 1987 and 1990. The immediate cause of his death is unknown.

Subject No. 13 (U). This was a 40-year old male who was last seen in 1992. The patient had a history of hypertension for which he was being treated with Vasotec 10 mg daily. The patient also had an elevated prolactin level which was not related to hypothyroidism or the result of other medications that he was receiving. Work up of his pituitary gland included a CT scan which showed an empty sella associated with elevated levels of prolactin. The high levels of prolactin also caused him to be impotent. The patient also had probable coronary artery disease with cardiomyopathy, and there was evidence of myocardial infarction on an old cardiogram. The patient as a chronic smoker and also had been a heavy alcohol drinker, which may have contributed to the cardiomyopathy. The immediate cause of his death is unknown.

Subject No. 14 (U). This was a 71-year old woman who was last seen at the medical mission in March 1993. She was referred to Straub Clinic and Hospital in May 1991 for a questionable abdominal mass. Work up at that time was unremarkable for any masses. She was seen again in 1992. There was a concern of weight loss. She was seen once more in April 1993 for recurrent abdominal problems. A mass was discovered by CT in the region of the aorta and a biopsy of this mass indicated poorly differentiated adenocarcinoma, with an unknown primary source. The cause of death is unknown, but may have been due to the poorly differentiated adenocarcinoma.

Subject No. 15 (U). This was a 90-year old woman who was last seen in the medical program in April 1992. She had a history of constipation, hematuria, normocytic anemia and borderline hypertension. The patient also had bilateral cataracts and nonspecific complaints of joint pains and was taking symptomatic treatment for all of these problems. The cause of her death was not immediately apparent.

Subject No. 16 (U). This was a 67-year old male who was last seen for a visit in March 1992. He had a history of myocardial infarction, hypertension, and diabetes mellitus, and was being treated with Micronase 5 mg daily and Vasotec 5 mg daily. His diabetes was inadequately controlled and he had multiple ulcerations over his extremities. During his last visit he was found to have a prominent abdominal aorta and was being referred to Majuro for an ultrasound. The immediate cause of his death is unknown.

Subject No. 17 (U). This was a 75-year old woman who had been seen in March 1992 by the medical team. She was found to have out-of-control diabetes, increasing kidney function impairment and hypertension. In 1991, she was referred to Honolulu for persistent microscopic hematuria, which was found to be due to a renal calculus. A mammogram showed nipple retraction, and there were vascular calcifications in both breasts. The cause of her death is unknown.

Subject No. 18 (U). This was an 83-year old female who was last seen during the spring 1993 mission. Her past history included colon cancer surgically corrected in 1985. She had negative colonoscopies in 1988. She was found to be unresponsive and to have massive urinary tract infection. She was treated with intravenous antibiotics and hydration, and then transferred to Majuro Hospital for continued care. The immediate cause of her death was unknown but presumed to be due to urosepsis and coma.

Subject No. 19 (R). This was a 78-year old male last seen in the fall of 1993 with a history of diabetes with ophthalmopathy. He also had a history of hypertension, hypertriglyceridemia, and positive Hepatitis B. The patient expired in 1994; immediate cause of death is unknown.

Subject No. 20 (R). This 89-year old male was last seen in August 1994 at the Straub Clinic and Hospital He had colonic polyps, an abnormal thyroid ultrasound, a history of anemia, and hypothyroidism replacement with Synthroid. In April 1994, he also

had a history of a CVA and aphasia. The patient expired in October 1994; the cause of his death is not known.

Subject No. 21 (R). This 75-year old female was last seen in 1994 during the fall mission. She had been taking Synthroid for hypothyroidism. She also had a history of Type II Diabetes Mellitus which was treated with Micronase. She was status post cerebral vascular accident. The patient expired in July 1995, and the immediate cause of her death is not known.

Subject No. 22 (U). This patient was an 83-year old male, last seen during the fall 1993 mission. He had a history of anemia, glaucoma, mild hypertension, and renal abnormalities. His past history also included aortic stenosis and hypertriglyceridemia. The immediate cause of his death is not known.

Subject No. 23 (U). This 77-year old male patient had a history of chronic obstructive lung disease and hematuria, and had been seen at the Straub Clinic and Hospital for abdominal aortic aneurysm. He had a urinary cytology which showed no evidence of carcinoma. He was extensively worked upon with abdominal CT and renal ultrasound at the Straub Clinic and Hospital, and the only abnormality detected was a large aneurysm. No cause of death was identifiable.

Subject No. 24 (U). This female was born in 1923 and probably died in 1992. The patient was a 69 year old female who had a history of iron deficiency anemia, dementia, organic brain syndrome, and hypothyroidism. The patient was homebound, and had been in that condition for several home visits, the last one in 1992. The immediate cause of her death is unknown.

Subject No. 25 (U). This 62-year old female was an unknown diabetic for many years with a history of back and knee pain, as well as hemorrhoids. Her diabetes had been well controlled, and the patient's pain symptoms were relieved with analgesic therapy. The patient was last seen in September 1993, and the immediate cause of her death is unapparent.

Comparison group (All volunteer comparison patients were from Rongelap):

Subject No. 1. This was a 56-year female last seen during the spring 1996 mission. She had a history of congestive heart failure, atrial fibrillation, microhematuria, and diabetes mellitus. The patient had aortic stenosis and regurgitation with angina, and had required cardiac surgery for valvular replacement in 1980. The problem with the congestive heart failure appeared to be worsening when she was seen during the mission. An electrocardiogram showed atrial fibrillation, and the chest x-ray showed congestive cardiomegaly with pleural effusions bilaterally. The patient was treated during the mission, and then referred to the RMI Government for continued care. The immediate cause of her death was unknown.

Subject No. 2. This was an 84-year old female who was seen during the spring 1993 mission. She had a history of anemia of non-specific origin, a heart murmur and elevated cholesterol levels. She also had a history of diabetes mellitus and mild renal impairment. She was treated with Micronase 5 mg daily, and symptomatic treatment for analgesia with Tylenol. The immediate cause of her death was unknown.

Subject No. 3. This was a 62-year old woman with a previous history of anemia and nonspecific joint pains, as well as diabetes mellitus with adequate control. She had been treated with Micronase (4 tablets twice a day) and multivitamins. She had no abnormalities noted on her most recent thyroid ultrasound. Flexible sigmoidoscopy done during that visit was normal. There was no immediate known cause of death noted.

Subject No. 4. This was an 81-year old woman with a history of diabetes mellitus and status post thyroid carcinoma treated surgically in 1982. It was an occult papillary carcinoma. She had been treated with Micronase 5 mg daily and Synthroid 100 mcg daily. She also was known to have nonspecific joint pains and a history of anemia. She was last seen in March 1996, and treated with the above mentioned medications. She also had elevated creatinine, and high triglycerides and cholesterol. The immediate cause of death is not known. She is known to have expired in September 1996.

Subject No. 5. This was a 70-year old male who had a previous history of hypothyroidism diagnosed in 1992. He was being treated with Synthroid 200 mcg daily. Routine thyroid ultrasound indicated a multinodular gland with some retrosternal extension. FNA was done on one of the nodules, and this was nondiagnostic. The patient also had a history of cataracts in both eyes, and had a routine sigmoidoscopy in 1992 which was normal. The immediate cause of his death is not known.

Subject No. 6. This was a 73-year old female who was last seen during the spring 1985 mission. No other records were available after 1985 to make a satisfactory assessment of her medical condition. She was, however, known to be hypertensive, and was treated with Hydrochlorthizine. There is no known cause of death.

Subject No. 7. This was a 47-year old woman who was last seen during the fall 1995 medical mission. She had a history of diabetes mellitus treated with Micronase. She also had a history of fungal infections and microhematuria. Her thyroid function tests were normal and her last known blood tests for serum chemistries were normal. She also had iron deficiency anemia, a urinary tract infection, and multiple joint pains. The immediate cause of her death is not known.

Subject No. 8. This was an 82-year old male who was last seen during the fall 1993 mission. He had progressive anemia and refused to have bone marrow testing. A house call was made to evaluate his medical status. He was found to be unresponsive during his visit but moved all his extremities. He had some cough and fever for about a month prior to the home visit. The impression was that of severe cachexia secondary to his age, and the family decided against transporting the patient for further care at a hospital. The patient reportedly died soon after the home visit.

Subject No. 9. This was a 62-year old female who was last seen during the Medical mission in March 1993. She had a history of diabetes mellitus which was treated with Micronase 5 mg daily. She also had nonspecific joint pains, as well as vulvulitis. Her laboratory tests during the last visit indicated no specific abnormalities. She was later admitted to Majuro Hospital in a coma of 24-hour duration and sepsis. She was eventually diagnosed with meningitis which was reported to be the cause of her death on the death certificate.

Subject No. 10. This was a 70-year old male seen at Ebeye Hospital during the spring 1994 mission. He had been admitted to Ebeye Hospital with a history of osteomyelitis, and sepsis. He also was a known diabetic and was being treated with Micronase 5 mg daily. He had a prior history of thrombocytopenia of unknown etiology. During the hospital visit he was given Ciprofloxin 500 mg twice a day and was given a renewal of his Micronase prescription. The immediate cause of his death was not known but presumed to be sepsis due to osteomyelitis.

Subject No. 11. This was a 53-year old male who was last seen during the 1994 fall mission. He expired in 1995. He had a history of cerebral vascular accident which occurred several years ago, and he had residual left-sided hemiparesis. He had impaired renal function, and a history of anemia. He also had a history of hypertension, which was controlled with Nifedipine 10 mg four times daily. The patient had no thyroid abnormalities. The immediate cause of his death was not known.

Subject No. 12. This was a 70-year old male who was last seen during the fall 1995 mission. The patient had a history of multiple thyroid nodules which were diagnosed on thyroid ultrasound. These were benign. He also had a history of hypertension, bronchial asthma with chronic obstructive lung disease, and congestive cardiac failure. He also had Type II Diabetes Mellitus associated with obesity. The patient expired in 1996 and the immediate cause of his death was not known.

Subject No. 13. This was a 51-year old female last seen during the fall 1993 mission. She had a history of urinary tract infection, Diabetes Mellitus with neuropathy, degenerative arthritis of the cervical spine, and a class III PAP smear. She had a painless mass in the right breast which was most likely of inflammatory origin. She was referred to the 177 Health Care Program for treatment and excision of the mass. The immediate cause of her death was unknown. She expired in 1996; since 1994, she had not been attending follow-up visits to the Medical Program.

Subject No. 14. This was a 71-year old female last seen during the fall 1992 mission during a home visit. During the last mission that she was seen, she was found to have Type II Diabetes Mellitus (she took insulin for a short time, then switched to oral agents), hypertension, hearing difficulty, and bilateral cataracts. She was treated with Micronase 5 mg daily and Vasotec 10 mg daily. She subsequently refused other visits and expired in 1995. The immediate cause of her death is unknown.

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Epilogue

by
E.P. Cronkite, M.D.

On March 1, 1954 following a detonation of a thermonuclear bomb, Rongalap and Utrik inhabitants, as well as American Servicemen were exposed to fallout. Several Marshallese had sufficient fallout material on their skins to produce Beta burns. The burns healed leaving scars in some individuals. There were significant decreases in white blood cell and platelet counts which ultimately returned to normal. There had been nausea, vomiting and diarrhea in some of the Marshallese which was not reported in the exposed Americans. The team that observed the exposed persons returned to the US when it became evident that the exposed persons were recovering from the effects of the fallout radiation.

On July 12-13 1954, Dr. John Bugher, Director, Division of Biology and Medicine of Atomic Energy Commission convened a meeting of all personnel that had observed the Rongalap and Utrik inhabitants caught in radiation fallout in order to discuss the future management of these Marshallese patients. He made it clear that the DBM-AEC would be responsible for the future observation and care of the Marshallese that had been exposed on Ailinginae, Rongerik and Utrik Atolls and that the Department of the Interior was responsible for general medical surveillance of the Marshallese on other atolls. It was decided that V.P. Bond would lead a team to survey the status of the Rongalap and Utrik inhabitants of the above atolls six months after the accident and that E.P. Cronkite lead a team 12 months after the accident. Dr. R.A. Conard assumed responsibility in 1956, for direction of the continuing Marshallese Medical Program involving those individuals exposed on Ailinginae, Sifo, Rongelap and Utrik under auspices of BNL. For 25 years, Dr. Conard guided the program with skill and diplomacy. There were some turbulent times, when through misunderstanding of the role of the BNL team, the Marshallese became uncooperative largely as a result of political problems.

There is no question that the radiation was responsible for skin burns, epilation, temporary suppression of hemopoiesis, thyroid hypofunction, thyroid tumors and probably responsible for the fatal case of acute leukemia. One can never be absolutely certain since it is not possible to tell the difference between spontaneous leukemia and radiation-induced leukemia. Based upon the extensive data collected in Japan on the survivors from the atomic bombs at Hiroshima and Nagasaki, it is most unlikely that further radiation effects will be observed in the Rongalap and Utrik inhabitants caught in radioactive fallout. However, there are problems traceable to the nuclear bomb testing in the Marshall Islands.

Appendix A

APPENDIX A

PROFESSIONAL STAFF PARTICIPATING IN THE 1992-1996 MARSHALL ISLANDS SURVEYS

NAME/SPECIALTY	PARTICIPATING SURVEY	AFFILIATION
CARDIOLOGY		
Maj Janet Hays, MD	S/92	Senior Cardiology Fellow Brook AMC San Antonio, TX
DERMATOLOGY		
Richard Ostreicher, MD	S/92	Sr Resident, Dermatology NY Univ Med Center NYC, NY
EMERGENCY MEDICINE		
Douglas Binder, MD	F/93	Resident, Emergency Med Bronx Municipal Hosp Ctr NYC, NY
Eric Lindborg, MD	F/95, S/96	Chief of Staff Kwajalein Hospital Kwajalein, MH
Steven Mehaffey, MD	S/95	Staff Physician Kwajalein Hospital Kwajalein, MH
ENDOCRINE		
LaVonne Berg. MD	S/92	Fellow, Endocrinology Case Western Reserve Univ Cleveland, OH
Robert Blank, MD	S/95	Fellow, Endocrinology Rockefeller Univ NYC, NY
Col Michael Bornemann, MD	S/94	Chief, Endocrinology Dept of Medicine Tripler AMC Honolulu, HI

Barbara Fleming, MD	S/93	Assoc Chief of Staff VA Medical Center Cleveland, OH
CPT Lloyd Hancock, MD	S/96	Asst Chief, Endocrinology Eisenhower Army Med Ctr Fort Gordon, GA
Maj Gregory Hughes, MD	S/94	Staff Endocrinologist Tripler AMC Honolulu, HI
Mark Lakshmanan, MD	S/93	Senior Instructor Dept of Endocrinology Metro Health Med Ctr Cleveland, OH
James Magner, MD	F/96	Professor of Medicine East Carolina Univ Sch of Med Greenville, NC
Lawrence Parker, MD	F/94	Asst Chief, Endocrinology VA Med Ctr Long Beach, CA
Maj R. Michael Tuttle, MD	F/93, F/96	Chief Endocrinology Walter Reed AMC Washington, DC
Ashok Vaswani, MD	S/92/ F/94, F/95, S/96	Consulting Endocrinologist, MIMP Asst Prof of Medicine, SUNY, NY
CMD Ann Yoshihashi, MD	S/95	Fellow, Endocrinology National Naval Med Center Bethesda, MD

FAMILY PRACTICE

CDR Nathaniel Cobb, MD	F/96	Director, Indian Health Service, PHS Albuquerque, NM
Kevin Cook, MD, MPH	F/92	Staff Physician Kwajalein Hospital Kwajalein, MH

GASTRONENTEROLOGY

Michael Bliss, MD	S/92, F/95	Prof of Medicine Boston City Hospital Boston, MA
Peter Ells, MD	S/96	Acting Dir, Gastroenterology SUNY, Stony Brook Stony Brook, NY
Wayne Lucas, MD	F/96	Fellow, Gastroenterology Boston City Hospital Boston, MA

HEMATOLOGY

William Adams, MD	S/92, F/92	Medical Dir, MIMP (to 1992) Brookhaven National Lab, Upton, NY
Jean Howard, MD	S/92, F/92, S/93, F/93, S/94, F/94, S/95, F/95, S/96, F/96	Hematology/Oncology Medical Dir, MIMP (from 1993) Brookhaven National Lab, Upton, NY

INFECTIOUS DISEASES

Dina Toren, MD	F/92	Dept of Infectious Disease Fellow, NY Univ Med Center NYC, NY

INTERNAL MEDICINE

Colin Atterbury, MD	S/93	Chief of Staff Yale School of Med New Haven, CT
Maj Benjamin Berg, MD	S/94	Staff Pulmonologist Dept of Medicine Tripler AMC, Honolulu, HI
Michael Hamilton, MD, MPH	F/94	Clinical Asst Prof of Medicine Duke Univ Med Ctr Durham, NC
Thomas Minor, MD	S/95	Fellow, Medicine Mayo Clinic Rochester, MN

NEPHROLOGY

James Barr, MD, PhD	S/92	Staff Nephrologist Dept of Medicine Brook AMC Houston, TX

NUCLEAR MEDICINE

John Harbert, MD	F/95	Prof Emeritus, Nuc Med Georgetown University McLean, VA Advisor to Presidential Committee on Radiation
Henry Royal, MD	S/96	Prof of Radiology Mallinckrot Inst St. Louis, MO Member of Presidential Committee on Radiation

OB/GYN

Stuart Abrahams, MD	F/95	Private Practice, GYN Greensboro, NC
Frank Anderson, MD, MPH	F/93	Fellow/Instructor, GYN John Hopkins Univ Baltimore, MD
Lauren Brown, MD	S/93, S/94, S/95	Pediatric Gynecologist Children's Hospital Boston, MA
Pui Chun Cheng, MD	S/94	Chief Resident, GYN Stony Brook Univ SUNY, Stony Brook, NY
Richard Gallagher, MD	F/96	Private Practice, GYN Concord, MA
Col Samuel Heth, MD	F/94	Staff Physician, GYN Tripler Army Med Ctr Honolulu, HI
Robert Holland, MD	F/95	Staff Physician, GYN Mountainview Woman's Health Grandview, WA
William Inkret, MD	F/96	Private Practice, GYN Denver, CO

Michael Janicek, MD	S/93	Chief Resident, GYN John Hopkins University Baltimore, MD
CMD Robert Laliberte, MD	S/96	Chairman, Dept of OB/GYN Phoenix Indian Med Center Phoenix, AZ
Gilda Lorensen, MD	F/94	Staff Physician, GYN Carolina Permanente Med Grp Raleigh, NC
Rochelle Mathieu, RN, NP	F/93	Private Practice, GYN Hilo, HI
Leonard Schonberg, MD	S/96	Private Practice, GYN Helena, MT
John Tucker, MD	S/92	Asst Clinical Prof of GYN Harlem Hospital NYC, NY
Marina Torbey, MD	S/92	Attending Physician, GYN Albert Einstein College of Medicine Bronx, NY
Maj Mary Zozulin, MD	S/95	Staff Physician, GYN US Air Force MC Grand Forks, ND
PATHOLOGY		
Donald Paglia, MD	S/93, S/94	Prof of Pathology UCLA Los Angeles, CA
PULMONARY		
Herman M. Blaton, MD	S/92	Chief, Pulmonary Service Brooke AMC San Antonio, TX
Robert Fallat, MD	F/93	Dir of Pulmonary Research California Pacific Med Ctr San Francisco, CA
Maj Joseph Kern, MD	F/94	Staff Physician, Pulmonary Div Madigan Army Center, Tacoma, WA

CDR Scott Sageman, MD	F/96	Staff Physician, Pulmonary Div Naval Med Ctr San Diego, CA

RADIOLOGY

William Brant, MD	F/94	Assoc Prof of Radiology Univ of CA - Davis Davis, CA
Maj Allen Chantelois, MD	S/92	Staff radiologist Fitzsimmons AMC Aurora, CA
LCDR Daniel Davis, MD	F/96	Diagnostic Radiologist Dept of Radiology National Naval MC Chesapeake, VA
CPT Michael Freckleton, MD	S/95	Chief, Outpatient Radiology Air Force MC Lackland, TX
CPT Walter Goff II, DO	F/94	Chairman, Radiology Dept Naval MC San Diego San Diego, CA
Col Chris Jennings, MD	S/96	Staff Radiologist Tripler Army Med Center Honolulu, HI
CMD David Lawrence, MD	S/94	Director, MRI National Naval Med Ctr Bethesda, MD
LTCD Robert McFarland, MD	S/96	Staff Radiologist San Diego Naval Med Center San Diego, CA
Maj David May, MD	S/95	Staff Radiologist Wilford Hall AFB Lackland, CA
Philip Moyers, MD	F/95	Fellow, Radiology & Nuc Med Barnes Hospital St. Louis, MO
Robert Shepherd, MD	F/95	Chair of Radiology Univ of Texas Health Center Tyler, TX

Virginia Toombs, MD	F/96	Private Practice, Radiology Palo Alto California
Philip Wiest, MD	F/94	Asst Prof Radiology VA Medical Ctr Albuquerque, NM

SURGEON

Earl Thornhill, MD		Staff Physician Kwajalein Hospital Kwajalein, MH

NURSES

Altina Anien	F/93, F/96	Majuro Hospital Majuro, MH
Toltha Arelong	F/92	Majuro Hospital Majuro, MH
Sandy Balos	F/95	Majuro Hospital Majuro, MH
Marlene Brady	F/94	Kwajalein Hospital Kwajalein, MH
Kathy Campbell	S/92, F/92	Kwajalein Hospital Kwajalein, MH
Trudy Campbell	S/93	Kwajalein Hospital Kwajalein, MH
Lynda Firment	S/94	DOE Washington, DC
Deborah Greenhill	S/94	Kwajalein Hospital Kwajalein, MH
Reine Heine	S/96	Majuro Hospital Majuro, MH
Aurelia Inkret	F/96	Private Practice Denver, Co
Stanley Jacob	S/95	Ebeye Hospital Ebeye, MH
Helen Jetnil	F/94	Majuro Hospital Majuro, MH
Nennet Joel	S/95	Majuro Hospital Majuro, MH

Kelly Johnson	S/95	Tripler AMC Honolulu, HI
Leslie Kirkham	F/95	Kwajalein Hospital Kwajalein, MH
Clementina Lalimo	F/96	Majuro Hospital Majuro, MH
Tinar Lalimo	S/93	Majuro Hospital Majuro, MH
Rosebeth Lang	S/96	Majuro Hospital Majuro, MH
Risen Lomae	F/94	Majuro Hospital Majuro, MH
Utena Marshall	F/9, S/95	Majuro Hospital Majuro, MH
Tina Naisher	F/95	Majuro Hospital Majuro, MH
No Phillips	S/93	Majuro Hospital Majuro, MH
Linda Puchon	F/93	Kwajalein Hospital Kwajalein, MH
Nanik Rantak	S/93	Majuro Hospital Majuro, MH
Patricia Rembert	S/95	Kwajalein Hospital Kwajalein, MH
Albina Riklon	S/92, F/92	Armer Ishoda Hospital Majuro, MH
Patricia Robins	F/95	Dept of HHS/Public Health Service, Bethesda, MD
Ivy Springer	F/94, F/96	Kwajalein Hospital Kwajalein, MH
Caroline Tuman	F/96	Resident Nurse Walter Reed AMC Washington, DC
Mary Ulyat	S/96	Private Nurse Upton, NY

PHARMACY

NAME		
Jiri Cizinsky	S/94, S/96	Consultant, MIMP Upton, NY
Blanka Cizinsky	S/96	Pharmacy Assistant BNL, Upton, NY

ADMINISTRATION

NAME		
Peter Heotis, MPS	S/92, F/92, S/93, F/93, S/94, F/94, S/95, F/95, S/96, F/96	Admin, MIMP (from 1993) BNL, Upton, NY
William Scott	S/92, F/92	Admin, MIMP BNL, Upton, NY

TECHNICIANS

NAME		
Robert Brown, Tech	F/93, S/94, F/94, S/95, F/95, S/96, F/96	MIMP BNL, Upton, NY
Linda Cavaliere, RT	F/95	Medical BNL, Upton, NY
Helmer Emos, Tech	S/92 - F/96	MIMP, BNL Ebeye, MH
Lee Harris, RT	F/92, S/93, F/93	Honolulu, HI
John Heinrichs, MS	S/92	Medical BNL, Upton, NY
William Lehman, RT	S/92, F/92, S/93, S/94	Medical BNL, Upton, NY
Fran Putnam, RT	S/92	Stony Brook Univ Stony Brook NY
Tonya Sheppard, RT	S/94	Sacramento, CA
Veronica Simpson, RT	S/94 - F/96	Long Island, NY
Harry Ulyat, Tech	S/92, F/92, S/93, F/94 - F/96	BNL, Retired Crystal River, FL

TRANSLATORS

Capelle DeBrum, Translator	F/93 - F/96	Bechtel Nevada Honolulu, HI
Elsa Patton, Translator	F/96	Kwajalein, MH
Kosang Mitzutani	S/92	Majuro, MH
Sebio Shoniber	S/92, S/93, F/93, F/94	Majuro Hospital Majuro, MH
Pamela Hazel	F/93	Kwajalein, MH
Max Helkena	F/93	Majuro Hospital Majuro, MH
Estella Leviticus	S/95	Majuro Hospital Majuro, MH
Heddleson Jeadrik	S/96, F/96	Ebeye Hospital Ebeye, MH
Marie Laik	S/96, F/96	Bechtel Nevada, HI
Linda Hall	F/96	Kwajalein, MH

Appendix B

APPENDIX B

Individual patient ((Marshallese)) laboratory data collected during 1992 through 1996 medical surveys. (Identification numbers 1 to 86 belong to exposed persons of Rongelap and Ailingnae; numbers beginning at 2102 belong to the Utirik exposed; numbers from 805 through 1578 belong to the Comparison group).

Abbreviations:

PID	=	**P**atient **ID**entification Number
SEX	=	1 - Male; 2 - Female
AGE	=	years
WBC	=	**W**hite **B**lood **C**ell (leukocyte) count/µl
PMN	=	**P**olymorphonuclear cells (neutrophil) count/µl
BAND	=	**Band** forms/µl
LYMPH	=	**Lymph**ocytes/µl
MONO	=	**Mono**cytes/µl
EOS	=	**Eos**inophils/µl
BASO	=	**Baso**phils/µl
PLT	=	**P**latelet count * 10^3/µl
HCT	=	**H**ematocrit (percent)
RBC	=	**R**ed **B**lood **C**ells (erythrocytes *10^6/µl)
MCV	=	**M**ean **C**orpuscular **V**olume in fl (cu. microns)
HGB	=	**H**emoglobin level in g/dl
TSH	=	**T**hyroid **s**timulating **h**ormone level in µIU/ml
PRL	=	serum **pro**lactin in ng/ml
FBS	=	**F**asting **b**lood **s**ugar in mg/dl
HBA1C	=	**h**emoglobin A1C (glycosylated) in percent
RBS	=	**R**andom **b**lood **s**ugar in mg/dl
CAL	=	**Cal**cium in mg/dl
TPR	=	**T**otal **pr**otein in g/dl

NOTES: Series of 9's indicate test not performed or unavailable.

Series of 0's indicate test performed but results below lower limit of detection.

COMPUTER LISTING OF 1992 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH
2	1	39	9000	6210	0	1890	90	810	0	218	41.4	4.30	96.3	14.6	2.30
3	1	39	11400	5130	0	3990	570	1254	114	233	44.4	4.97	89.3	15.3	999.99
4	1	76	11800	8496	1416	590	1062	0	0	207	44.3	5.23	84.7	15.3	.90
5	1	39	5700	2394	57	2337	342	456	114	250	45.6	4.57	100.0	13.3	999.99
6	1	39	7200	4680	0	2304	144	72	0	265	47.4	4.93	96.0	15.2	3.12
7	1	72	9300	3906	93	3255	465	1488	93	314	39.2	4.33	90.6	13.8	999.99
8	2	40	12600	5796	0	6174	126	378	126	305	39.0	4.16	93.7	14.4	4.33
9	1	58	8000	4640	0	2880	160	320	0	220	43.1	4.79	90.0	14.4	2.90
14	2	62	7800	4368	0	3276	78	78	0	270	39.4	3.85	102.0	12.7	1.90
15	2	45	9100	4277	0	3549	728	546	0	318	40.6	4.35	93.4	13.6	11.50
16	1	78	5100	2091	0	1785	153	969	102	219	38.6	5.29	72.9	12.8	7.74
17	2	41	6800	4080	0	1632	544	544	0	267	37.6	4.32	87.1	13.3	11.70
18	2	59	5100	2805	0	1785	153	255	102	215	39.0	4.24	92.0	12.6	4.60
19	1	43	7200	5400	0	1224	504	72	0	200	46.5	6.21	74.9	15.3	999.99
20	1	44	5900	3009	0	1829	177	767	118	260	46.4	5.42	85.6	15.6	2.80
21	2	40	6100	3294	0	1708	610	488	0	276	38.2	4.78	80.2	13.2	999.99
23	1	42	7700	2695	0	4004	462	539	0	287	45.5	5.28	86.1	15.5	6.88
24	2	51	6100	3172	0	2745	61	183	0	282	43.6	5.02	86.8	15.5	.40
27	1	64	6900	3519	0	2070	483	690	138	225	45.1	4.37	103.0	14.4	2.10
33	2	40	9000	3960	0	3600	270	900	270	344	41.2	4.52	91.1	15.1	35.40
34	2	82	10500	6300	315	2100	735	1050	0	245	32.3	2.98	108.0	10.0	5.70
36	1	46	7400	4440	0	2590	370	99999	99999	231	35.1	3.79	92.7	12.5	15.22
37	1	58	10100	7474	202	1414	202	909	0	187	37.9	4.11	92.1	13.0	1.50
39	2	52	7600	3800	76	2812	304	532	152	402	38.5	4.27	90.2	13.0	4.60
40	1	67	7000	4270	140	1820	140	630	0	279	36.6	4.10	89.3	12.9	2.70
41	1	79	5800	3364	0	1624	232	580	0	215	36.8	3.94	95.0	12.1	3.80
42	2	41	5700	2907	0	2508	114	57	114	181	37.7	3.92	96.3	14.0	.12
44	1	42	5500	2475	0	2365	440	220	0	299	34.6	3.73	92.8	12.3	1.30
45	2	70	99999	99999	99999	99999	99999	99999	99999	999	99.9	9.99	999.9	99.9	.50
47	1	46	6800	3944	136	2176	272	204	68	247	42.5	4.31	98.6	15.2	3.60
48	2	43	5600	4032	0	1176	280	56	56	225	42.4	4.39	97.0	13.3	999.99
49	2	54	6800	3060	0	3400	0	204	136	299	39.3	4.50	87.3	13.2	.50
53	2	45	7900	3871	0	3397	316	237	0	391	38.2	4.33	88.2	13.5	3.40
61	2	46	12500	8500	0	3375	250	250	99999	286	37.9	4.37	86.7	13.8	7.40
62	2	-6	10500	99999	99999	99999	99999	99999	99999	246	38.9	4.41	88.2	14.1	999.99
63	2	73	6600	2772	0	3168	132	462	66	210	39.2	4.33	90.6	13.3	3.40
64	2	68	5100	1734	0	3060	51	204	51	210	38.2	3.83	100.0	12.1	21.60
65	2	39	5400	1890	0	2214	162	972	162	265	35.1	3.82	91.9	11.6	999.99
66	2	67	7400	2220	148	4144	740	148	0	216	38.6	4.34	89.0	13.4	7.80
67	2	51	7400	4662	0	1850	444	444	0	245	41.1	3.99	103.0	12.9	17.30
70	2	54	5200	3068	0	1716	208	156	52	205	36.5	4.20	87.0	12.1	6.80
71	2	64	6900	3243	0	3105	207	276	69	237	39.2	4.28	91.5	13.8	6.30
72	2	45	6100	3660	122	1891	244	61	122	402	36.5	4.11	88.9	12.5	999.99
73	1	56	4300	2365	0	1290	430	215	0	200	46.4	4.85	95.6	15.9	1.90
74	2	53	9300	5022	186	2883	372	837	0	223	44.7	5.02	89.1	15.2	3.30
75	2	49	7500	3675	0	2925	300	450	150	257	40.2	4.45	90.3	13.1	11.80
76	1	48	7500	3300	0	3225	450	450	75	180	44.6	4.82	92.6	16.0	999.99
77	1	62	7300	5402	73	1314	292	146	73	263	45.0	5.03	89.5	15.5	2.50
78	2	73	5700	2337	57	3135	0	0	57	259	38.0	4.06	93.7	13.5	2.90
79	1	77	6600	2904	0	2904	396	264	132	81	46.3	4.72	98.0	14.6	1.40
83	1	37	10200	4998	0	3774	612	714	102	158	47.4	4.87	97.3	17.0	5.70
85	1	37	7900	4503	79	2449	790	79	0	286	47.9	5.35	89.5	16.4	1.40
86	2	37	7900	5372	0	1896	158	395	79	220	41.2	4.59	90.0	12.7	3.10
805	2	38	4200	99999	99999	99999	99999	99999	99999	324	37.6	4.62	81.4	12.2	999.99

COMPUTER LISTING OF 1992 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH
811	2	38	8400	4536	84	3276	336	168	0	309	34.4	3.60	95.5	12.6	1.60
815	1	41	5200	3068	0	1716	208	104	104	223	47.1	5.12	92.0	16.2	1.20
816	2	42	7400	5254	0	1332	148	592	74	255	41.5	4.45	93.0	12.8	999.99
820	1	43	6300	1575	0	4284	315	126	0	266	48.2	5.09	94.7	16.7	999.99
822	1	46	5900	2773	0	2714	413	0	0	253	44.6	5.03	88.7	15.0	.50
823	1	48	7100	2840	0	2485	426	1349	0	258	43.9	4.69	93.5	15.5	999.99
825	2	50	6400	3456	0	2432	384	0	128	297	39.0	4.53	86.0	13.7	999.99
826	2	55	3800	2432	0	950	76	342	0	151	32.3	3.64	88.8	10.7	999.99
827	1	51	9600	5472	96	2880	672	480	0	283	42.8	4.59	93.2	14.2	999.99
832	2	54	5500	2750	0	2255	385	55	55	250	41.6	4.89	85.0	12.6	999.99
833	1	59	6300	3276	126	2457	378	0	63	220	42.8	5.07	84.5	15.1	999.99
834	1	58	6600	3696	66	2244	198	396	0	241	46.7	5.37	86.9	16.3	999.99
835	2	58	9300	6603	0	1953	651	93	0	280	52.7	5.60	94.0	16.8	999.99
838	1	59	9700	6111	0	2522	582	485	0	268	50.2	5.47	91.7	16.9	999.99
840	1	62	15000	5550	0	2850	1350	4650	600	310	42.6	5.31	80.3	14.5	2.30
841	2	59	5500	2585	0	2640	110	165	0	178	35.4	4.06	87.2	12.4	999.99
843	2	63	8100	5184	0	2268	162	324	162	249	35.4	3.71	95.3	12.4	999.99
844	2	73	4700	2632	0	1692	188	141	47	175	42.0	4.28	98.0	13.2	999.99
845	1	62	6600	4356	0	1782	198	198	66	230	44.3	4.76	93.0	13.1	999.99
851	2	82	6100	3233	0	1830	305	671	61	305	33.5	3.30	102.0	10.8	999.99
865	2	59	5200	2080	0	2496	260	208	156	246	37.5	4.05	92.5	14.2	999.99
867	2	64	8700	99999	99999	99999	99999	99999	99999	195	41.2	4.65	88.6	15.0	.03
879	2	37	6200	3596	0	2108	186	186	124	323	38.8	4.46	87.0	13.7	999.99
881	1	59	7900	3476	0	3555	474	158	237	320	48.3	5.23	92.0	14.8	999.99
882	1	58	5100	2142	0	2244	357	255	102	193	49.0	5.70	86.0	15.3	999.99
883	1	80	6900	2208	0	3381	621	552	138	225	44.9	4.14	108.0	13.4	6.70
888	2	62	6200	3596	0	2232	248	124	0	280	42.2	4.51	94.0	13.0	999.99
896	2	52	8000	3920	80	2960	640	320	0	310	42.2	4.57	92.0	13.6	999.99
911	2	39	6400	3249	0	1824	171	342	57	370	40.5	4.47	91.0	12.9	999.99
914	2	57	9600	4320	0	3360	480	1248	192	267	34.5	4.11	84.0	12.1	999.99
920	1	60	5600	3360	0	1848	168	112	0	177	42.1	4.53	92.9	15.0	999.99
922	2	67	7100	2982	0	3124	497	355	71	289	41.1	4.55	90.3	14.5	999.99
925	2	41	10600	5512	0	4452	318	212	106	456	38.9	4.67	83.2	13.2	999.99
926	2	41	6100	3904	0	1647	244	244	61	146	40.6	4.76	85.2	14.3	999.99
932	2	67	6900	4209	0	1863	138	552	69	285	37.3	3.93	95.0	12.3	2.40
934	2	67	7600	3800	0	3192	228	228	152	334	36.6	4.41	83.0	13.1	999.99
938	2	59	7000	4620	0	1680	490	140	70	168	37.6	4.35	86.4	13.3	999.99
939	1	46	5600	2464	0	2408	56	560	112	210	46.8	5.45	86.0	15.2	999.99
942	2	77	6200	3410	0	2232	310	124	62	330	37.9	3.98	95.0	11.8	999.99
943	1	61	9800	6958	0	2058	686	0	98	348	44.9	4.82	93.1	15.6	999.99
944	1	67	8100	4212	0	2592	648	405	243	153	43.6	5.15	84.7	15.6	.40
955	2	39	7900	3318	0	3792	158	632	0	273	40.0	4.34	92.2	13.7	999.99
959	2	43	9600	5280	0	2784	384	1056	0	324	41.3	4.61	89.6	14.3	999.99
960	2	40	7300	4964	146	1679	438	73	0	270	41.2	4.57	90.0	13.1	999.99
963	1	64	5900	2419	0	3127	177	177	0	310	43.2	4.58	94.0	13.0	999.99
965	2	48	8100	5832	0	1377	567	324	0	337	38.0	4.54	83.7	13.0	999.99
966	1	60	5100	3060	51	1224	408	408	51	215	38.4	4.17	92.2	12.9	999.99
971	1	49	8800	5016	264	2816	704	0	0	310	45.0	5.11	88.0	16.0	999.99
977	2	46	10400	5824	0	3120	416	936	104	267	37.3	4.35	85.7	13.1	999.99
981	1	38	35200	29920	0	3520	1408	0	0	193	52.1	5.76	90.4	18.8	999.99
998	2	44	5700	2394	0	2679	627	0	0	267	43.2	4.86	89.0	13.8	999.99
1001	2	58	5500	2420	55	2695	220	110	0	224	40.5	5.03	80.6	13.3	1.30
1007	1	81	4400	2332	0	1716	88	220	0	190	38.4	4.00	96.0	11.8	6.60
1035	2	41	8500	5270	0	2805	255	170	0	265	42.3	4.92	86.0	15.3	999.99

COMPUTER LISTING OF 1992 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH
1036	1	40	7500	4275	75	2700	300	75	150	213	48.0	5.53	86.8	17.0	999.99
1519	1	49	5600	3696	56	1288	336	224	0	262	46.5	5.17	90.0	16.0	999.99
1520	2	61	7700	4620	0	2695	308	0	77	360	45.9	5.33	86.0	14.8	999.99
1524	1	49	10600	7314	212	2544	742	106	0	202	47.3	5.03	94.1	17.1	999.99
1525	2	49	6000	3180	0	1260	480	1080	0	334	38.6	4.27	90.4	13.2	999.99
1529	1	45	10300	7210	0	2060	824	206	0	242	42.2	4.97	84.9	14.0	999.99
1541	2	64	10600	4452	106	4982	636	318	106	215	41.2	5.08	81.0	13.2	999.99
1542	2	39	6400	2752	0	3136	320	192	0	256	45.0	5.63	79.9	15.0	999.99
1546	1	78	10300	5253	0	4120	824	103	0	112	46.6	5.21	89.5	16.8	999.99
1548	2	50	11600	7424	232	2204	464	1044	232	287	25.0	2.68	93.1	99.9	999.99
1549	1	39	8600	4386	0	2924	602	516	172	318	41.4	4.71	88.0	14.3	999.99
1550	1	49	10300	6180	0	3296	515	309	0	377	39.7	4.49	88.4	13.7	999.99
1552	1	62	5400	2646	0	2430	162	162	0	256	41.7	4.72	88.3	14.1	999.99
1556	2	47	7700	5082	0	2156	231	154	77	283	37.6	3.96	94.9	13.5	4.90
1557	1	44	9200	5520	92	2576	460	552	0	236	42.4	4.59	92.3	14.8	999.99
1558	2	42	10000	4400	0	4000	600	800	200	358	41.3	4.64	89.0	14.7	1.90
1559	2	39	11000	7480	110	2750	220	330	110	345	42.2	5.24	80.5	14.3	999.99
1560	2	68	6600	4092	66	1980	264	198	0	209	38.3	3.94	97.3	13.9	999.99
1564	2	43	7500	2475	0	4350	225	450	0	265	39.2	4.48	87.6	13.5	1.30
1567	2	38	7300	3212	0	3212	365	365	146	327	35.0	4.06	86.1	12.4	999.99
1572	1	44	7400	4440	0	2072	370	370	148	227	48.4	5.66	85.5	16.5	999.99
1573	1	42	10700	5457	0	3745	642	856	0	206	47.2	4.94	95.6	16.6	999.99
1577	2	41	12400	8680	0	2108	372	1240	0	282	39.4	4.36	90.3	13.9	999.99
2102	1	48	9100	6006	0	2548	455	91	182	277	47.2	4.97	95.0	17.3	.64
2104	2	61	6600	4158	0	2310	0	132	0	237	38.7	4.24	91.3	13.3	5.90
2105	1	90	8700	5481	87	2088	261	783	0	405	35.4	3.88	91.0	11.4	.90
2106	1	42	13000	5980	0	3640	780	2470	130	239	45.0	5.31	84.7	16.0	2.90
2107	2	63	15100	8154	0	4832	906	1057	151	240	38.4	4.41	87.1	13.5	2.80
2110	1	85	7100	4331	0	2059	426	284	0	255	32.4	3.03	107.0	10.0	3.70
2111	2	41	10200	5508	0	3366	306	1020	0	447	40.3	5.19	77.7	13.5	1.80
2113	2	42	6600	2442	0	3696	0	330	132	318	41.0	5.49	75.8	13.3	2.30
2114	1	78	8200	5934	0	1978	344	344	86	254	31.8	3.68	86.4	11.0	.40
2115	1	38	12100	6655	0	4356	726	121	121	325	50.4	5.61	89.8	17.9	3.00
2124	1	39	9200	5980	0	2116	920	92	92	240	44.7	4.96	90.2	15.2	1.20
2126	2	46	8300	3984	83	3984	166	0	83	327	38.3	4.46	85.9	13.0	1.50
2130	2	40	8200	4428	0	2214	246	1230	82	200	37.2	4.27	87.2	12.6	2.30
2132	2	39	5200	2288	52	2392	208	208	52	222	41.9	5.09	82.3	14.5	3.00
2134	2	38	7600	5168	76	1292	380	608	76	321	42.0	4.80	87.4	14.5	3.10
2136	1	42	7900	4187	0	3002	237	474	0	304	39.8	4.36	91.2	13.6	1.70
2138	2	43	7800	4836	0	2340	468	156	0	403	37.8	4.39	86.1	13.7	1.91
2139	2	73	7000	3150	0	2870	420	560	0	321	34.0	3.60	94.5	11.6	3.90
2142	1	43	10400	7072	208	2392	624	104	0	194	45.0	4.87	92.5	16.0	3.00
2143	1	41	6000	3000	0	2400	420	60	120	999	39.2	4.82	81.3	13.3	999.99
2144	1	45	6500	3055	0	2860	390	195	0	197	47.3	4.95	95.8	16.8	2.12
2145	1	70	5300	2809	53	1537	318	530	53	274	40.2	4.24	94.9	13.7	1.70
2148	1	82	6000	2700	0	2880	240	180	0	175	34.9	3.74	93.3	12.0	999.99
2149	2	46	6500	2665	0	3250	195	195	195	286	33.7	3.81	88.4	11.7	5.30
2150	1	50	7900	4661	0	2449	474	237	79	188	45.1	5.36	84.2	15.5	1.80
2152	1	55	7300	5183	0	1533	365	73	146	269	39.9	4.41	90.4	14.8	1.20
2153	1	39	5800	3828	58	1334	232	348	0	223	44.4	5.61	79.1	15.0	3.56
2155	1	38	5600	3192	0	2016	280	112	0	257	50.3	5.83	86.3	17.5	.60
2156	1	47	2700	1134	27	1377	135	0	27	127	45.5	4.75	95.8	15.8	1.50
2158	2	67	7200	4248	72	1944	648	288	72	271	40.3	4.59	87.7	14.0	1.80
2160	2	42	6400	3456	0	2368	256	256	64	304	42.0	4.72	89.0	14.7	1.10

COMPUTER LISTING OF 1992 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH
2162	2	70	10100	7474	101	2121	404	0	0	271	33.5	4.15	80.8	11.3	1.94
2166	1	75	8900	7031	0	1602	267	0	0	325	42.9	4.85	88.0	13.6	4.50
2167	1	52	7000	2590	0	4130	210	0	70	217	45.3	5.20	87.1	15.9	.40
2171	2	40	8600	3440	0	2322	430	2064	258	252	41.8	4.75	88.1	13.7	46.50
2172	2	50	6600	4554	132	1320	198	396	0	300	43.9	4.92	89.3	14.7	1.70
2174	1	38	10600	6572	0	3180	212	636	0	336	49.4	5.70	86.6	17.4	2.47
2176	1	48	4400	1584	0	2332	220	88	176	249	42.8	4.52	94.7	15.0	.80
2182	2	90	6300	4536	0	1386	315	63	0	245	32.5	3.35	97.0	10.7	4.30
2188	1	41	5300	3286	53	1484	477	0	53	191	47.9	5.46	87.8	16.4	1.50
2193	2	69	6300	5729	63	567	252	189	0	440	33.4	3.47	96.0	10.8	2.10
2195	2	62	7900	4503	0	2133	395	79	0	300	38.4	4.67	82.2	13.0	1.40
2196	2	76	8900	5340	0	1869	267	1424	0	330	39.9	4.30	91.0	12.8	20.90
2197	2	39	6500	4160	0	2015	195	130	0	242	33.3	3.84	86.6	11.7	4.10
2205	1	67	7300	4307	0	2409	365	219	0	234	44.8	5.40	82.9	14.8	1.20
2206	1	70	8100	5022	0	2268	324	405	0	280	40.6	4.67	86.9	14.2	1.20
2207	1	43	7000	3150	70	2940	280	490	70	284	43.5	5.25	82.9	14.6	1.40
2208	2	75	11800	9440	118	1416	472	118	236	407	35.3	4.08	86.6	12.8	7.20
2209	2	43	7000	4200	0	2310	0	350	140	513	26.9	3.28	81.9	9.0	1.30
2210	2	38	5700	2451	0	2280	399	570	0	281	40.1	4.56	87.9	13.7	1.40
2213	2	39	8300	3154	83	4482	83	415	83	326	37.5	4.42	84.8	13.0	1.30
2215	2	71	8000	4320	0	2880	400	400	0	333	38.2	4.41	86.6	12.6	6.90
2216	2	72	13400	7772	134	4824	402	134	134	637	40.4	4.87	84.5	13.9	1.10
2217	2	59	16500	15345	825	165	165	0	0	245	38.4	4.17	92.2	13.2	1.10
2220	2	63	6400	4160	256	1216	512	192	64	265	39.7	4.34	91.5	14.1	3.50
2224	2	69	6300	3213	63	2520	126	252	0	365	35.6	3.82	93.2	12.2	1.80
2225	2	45	9600	5568	0	3264	96	672	0	316	31.8	3.86	82.4	11.5	3.85
2226	2	40	99999	99999	99999	99999	99999	99999	99999	999	99.9	9.99	999.9	99.9	3.72
2227	2	42	8800	4928	99999	3080	264	528	0	320	38.9	4.67	83.3	13.1	2.40
2228	2	46	11700	6786	234	3393	702	585	0	999	39.2	4.27	92.0	12.9	1.50
2229	2	56	6400	2752	0	3200	128	320	0	265	40.8	4.61	88.5	14.0	1.60
2230	2	50	7700	3850	0	2772	385	616	0	326	43.6	5.21	83.7	14.5	1.10
2231	2	39	7100	4260	0	2414	284	142	0	489	44.0	5.57	79.0	15.1	1.50
2232	1	40	8600	4644	0	2838	688	430	0	180	51.1	5.19	98.0	16.1	999.99
2233	1	39	6100	3477	0	1891	366	366	0	258	47.0	5.06	92.9	16.1	1.80
2234	1	50	6600	3894	66	2112	396	0	132	300	45.7	5.14	89.0	15.7	3.70
2235	1	46	9700	6014	0	2813	485	291	97	392	44.4	5.09	87.3	15.8	.65
2236	1	49	8200	5412	0	2132	574	82	0	397	44.9	5.26	85.3	14.6	7.50
2237	1	45	5600	3304	0	1680	280	280	56	381	43.9	4.87	90.1	15.1	2.20
2239	2	41	6500	4160	0	1040	520	780	0	323	38.5	4.36	88.2	13.1	.70
2244	2	82	5300	2173	0	2491	212	371	53	235	35.4	3.76	94.1	12.6	1.70
2247	2	46	8500	4250	170	1700	510	1530	340	320	33.4	4.39	76.1	10.9	1.20
2248	2	53	11200	7616	0	2464	560	448	112	309	41.8	5.03	83.1	14.0	.30
2250	1	48	7200	3816	0	2160	144	936	144	315	44.9	5.13	87.6	15.5	1.10
2251	2	43	9300	6231	0	1953	651	372	93	369	42.0	4.93	85.2	14.9	35.10
2254	2	42	5300	2544	0	2173	265	265	53	366	37.5	4.71	79.7	12.7	6.40
2256	2	43	6000	4140	0	1140	240	360	120	484	28.8	3.42	84.2	9.8	1.50
2257	1	45	6200	3348	0	2170	558	124	0	236	46.4	5.64	82.2	15.6	2.40
2260	2	38	11300	7119	0	3277	339	565	0	322	35.0	3.95	88.5	12.6	1.00
2261	1	63	6100	4026	0	1464	366	183	61	257	47.5	5.13	92.5	16.5	2.30
2269	1	37	7400	3922	0	2738	222	444	0	273	47.9	5.10	93.9	16.6	1.30
2271	1	37	5400	2538	54	2214	378	162	54	350	47.5	5.31	89.0	15.2	2.70
2273	1	38	7000	2590	99999	3850	560	70	0	305	50.0	5.85	85.5	17.5	1.12
2274	1	37	5300	2173	0	2438	424	159	106	255	48.4	5.56	87.0	15.2	1.20
2277	2	38	7200	4464	0	2088	360	72	0	285	34.9	5.04	69.2	10.8	1.37

COMPUTER LISTING OF 1992 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH
2548	1	38	5500	3685	165	1155	55	275	165	264	45.9	5.20	88.3	16.3	1.23

COMPUTER LISTING OF 1993 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH	CAL	PHOS	EALB	AL1	AL3	BET	GAM	HBSA	AHSA	AHBC
2	1	40	6300	2898	0	2772	315	252	63	207	43.9	4.54	96.6	15.1	9.67	9.0	4.2	3.7	.3	.6	.7	2.2	0	0	0
4	1	77	5300	1643	53	3180	53	318	53	227	32.4	3.84	84.3	12.1	3.68	9.3	4.2	3.5	.3	.8	.9	2.4	0	1	1
5	1	40	4500	1665	0	2070	270	450	45	219	44.1	4.72	93.4	15.2	3.51	9.3	4.1	3.7	.2	.7	.7	1.9	0	0	0
6	1	40	7200	4320	0	2448	144	288	0	221	42.9	4.57	93.9	15.1	2.05	8.8	3.9	3.4	.3	.6	.7	1.7	0	1	1
7	1	73	5200	1560	0	2964	208	416	52	319	37.2	4.09	90.9	13.3	.08	9.6	4.2	3.1	.3	.6	.9	3.2	0	1	1
8	2	40	7100	4047	71	2485	142	284	71	380	40.8	4.40	92.7	14.7	4.80	8.8	2.4	3.7	.3	.8	.9	2.5	0	1	1
9	1	59	7800	4602	0	2808	390	0	0	166	42.8	4.74	90.4	14.7	1.50	9.3	3.6	3.8	.3	.7	1.0	1.8	0	0	0
12	2	55	6900	4002	69	2415	138	276	0	300	37.0	4.19	88.3	12.5	2.76	9.4	4.1	3.5	.3	.7	.9	2.0	0	1	1
14	2	63	8400	4368	0	3528	84	336	84	259	33.8	3.52	96.1	11.8	1.59	9.4	4.5	3.9	.3	.7	.8	2.2	0	0	1
15	2	46	8600	3870	0	4214	258	344	0	357	39.1	4.20	93.1	13.4	8.26	8.8	4.3	3.4	.2	.7	.9	2.4	0	1	0
16	1	78	8400	3864	0	2604	588	1260	84	353	38.0	5.08	74.8	11.9	1.48	9.3	3.7	3.3	.3	.7	.8	2.3	0	0	0
17	2	42	8500	5185	0	2465	255	510	85	207	36.4	4.19	86.9	12.4	16.45	8.6	4.6	3.8	.2	.6	.8	2.4	0	1	1
18	2	60	8700	6177	0	1827	87	348	261	269	37.4	4.27	87.5	12.7	.16	9.3	3.7	3.6	.3	.6	.9	2.0	0	1	1
19	1	44	4100	2173	0	1435	123	164	205	154	30.7	4.06	75.5	10.1	1.12	9.3	3.6	4.1	.2	.6	.8	1.8	0	0	0
20	1	45	7400	4366	0	1998	370	444	222	300	45.1	5.29	85.3	15.4	1.52	9.8	2.7	4.0	.2	.6	.8	2.0	0	0	0
21	2	42	7300	4818	0	1825	365	438	0	309	34.9	4.38	79.6	12.0	12.29	6.2	5.2	3.4	.3	.8	.9	2.5	0	0	0
22	2	55	5400	2862	0	2214	54	216	54	276	36.7	4.02	91.3	12.1	1.67	9.1	4.0	3.5	.2	.7	.9	2.2	0	1	1
24	2	52	4800	2352	0	2112	288	0	48	197	33.4	3.79	88.2	11.8	1.98	9.0	3.7	2.8	.3	.6	1.2	2.6	0	1	1
27	1	65	8500	4930	85	2550	340	340	255	166	38.0	3.92	96.9	14.1	.89	9.0	3.5	4.1	.3	.6	.7	2.2	0	0	0
33	2	40	9300	5115	0	3069	558	558	0	209	41.3	4.53	91.2	14.3	43.19	8.5	3.3	3.2	.3	.7	.9	2.3	0	1	1
36	1	46	7500	4725	75	2475	75	75	75	260	35.0	3.65	95.9	12.1	6.66	8.9	2.7	4.0	.2	.6	.8	2.6	0	1	1
39	2	53	6000	9999	9999	9999	9999	9999	9999	380	38.3	4.22	90.8	12.6	2.61	8.7	3.8	3.3	.2	.7	.9	2.4	0	1	0
40	1	68	4400	2200	0	1980	132	132	0	238	35.0	3.92	89.4	12.0	1.55	8.5	3.0	3.6	.2	.5	.6	1.8	0	0	1
42	2	42	9400	7520	0	1128	94	564	94	212	36.0	XXXX	98.9	13.0	.89	9.2	4.4	3.4	.4	.7	.8	1.6	0	0	0
44	1	43	4800	2064	0	2304	96	240	96	242	45.9	5.55	82.7	15.4	.05	9.4	3.7	4.3	.2	.8	.8	1.7	0	1	1
45	2	71	9900	5445	99	3663	198	495	0	382	34.8	3.66	95.0	12.0	2.75	9.0	3.5	3.3	.3	.9	.9	2.4	0	0	1
47	1	48	7700	5390	0	1771	154	385	0	206	48.6	5.01	97.0	16.9	1.68	9.4	3.3	3.8	.3	.6	1.0	2.2	0	1	1
49	2	55	5900	3009	0	2537	177	177	0	251	40.2	4.64	86.6	13.7	.12	9.2	3.9	3.7	.2	.6	.8	2.1	0	1	0
61	2	47	11500	5520	0	5520	460	0	0	211	37.7	4.28	88.0	13.2	8.94	8.8	4.0	3.3	.3	.9	1.0	2.2	0	1	0
64	2	69	6900	2622	0	3381	0	345	552	220	34.5	3.61	95.5	11.3	56.67	9.0	4.2	3.5	XXX	.6	.8	2.7	0	1	1
65	2	40	8700	7221	87	1044	174	174	0	408	27.8	2.99	92.9	9.1	99.99	9.0	4.1	2.4	.5	.9	1.1	1.4	0	1	1
66	2	68	8800	3872	0	4576	264	88	0	253	42.5	4.75	89.4	14.5	.88	9.6	3.9	3.9	.3	.9	1.0	2.9	0	0	1
67	2	52	6100	3355	0	2257	183	305	0	307	40.7	4.31	94.5	14.1	13.45	9.3	4.0	3.9	.2	.5	.9	2.5	1	0	1
70	2	55	4300	2408	0	1462	129	258	43	226	36.2	4.49	80.7	12.7	.02	9.2	4.4	3.5	.3	.6	.7	2.5	0	1	1
72	2	46	6000	4020	0	1740	240	0	0	402	38.3	4.23	90.6	13.2	18.98	10.1	3.6	3.6	.3	.8	1.0	3.5	0	0	1
73	1	57	5800	3480	0	2030	232	58	0	250	44.8	4.67	96.0	15.5	.66	8.9	3.3	3.8	.3	.5	.6	1.7	0	0	1
74	2	54	11700	5265	0	5031	351	936	117	200	43.3	4.88	88.8	15.5	1.96	9.0	4.2	3.3	.2	.7	.9	3.1	0	0	1
75	2	50	8000	5280	0	2080	0	640	0	255	39.2	4.35	90.1	12.6	6.96	8.8	4.1	3.1	.2	.7	.8	2.7	0	1	1
76	1	49	6800	2856	0	3468	136	340	68	193	44.2	4.67	94.7	15.1	4.49	9.9	3.4	3.9	.2	.5	.7	1.8	0	0	1
77	1	63	7400	5180	0	1702	222	296	0	281	37.6	4.26	88.2	12.7	1.20	9.3	3.5	3.5	.3	.7	.8	2.5	0	1	0
78	2	74	3600	1548	72	1728	180	36	36	193	25.3	2.69	93.9	9.1	4.73	9.1	3.6	3.5	.3	.6	.8	2.1	0	0	0
85	1	38	12200	7564	0	3294	366	732	244	234	46.0	5.14	89.4	15.9	1.92	9.7	4.4	3.9	.3	.9	.9	2.1	0	1	1
86	2	38	7300	4599	0	2263	73	219	146	274	39.1	4.62	84.6	13.2	2.01	9.3	4.2	3.9	.3	.6	1.0	2.3	0	1	1
816	2	43	6300	3591	63	2205	189	252	0	290	39.5	4.53	87.2	13.0	1.04	8.7	3.7	3.7	.3	.7	.8	1.9	0	1	1
822	1	47	6600	4356	0	1518	264	264	132	239	41.7	4.76	87.6	13.9	.56	9.0	3.3	3.8	.2	.5	.7	1.5	0	0	1
823	1	50	5800	2900	58	2436	290	58	58	205	40.4	4.38	92.2	14.0	.84	8.9	3.2	3.7	.3	.6	.7	2.0	0	1	1
826	2	56	8800	5896	1056	968	880	0	0	333	35.5	3.98	89.3	11.6	1.61	8.8	3.0	3.5	.3	.6	.5	3.4	0	0	1
827	1	53	8000	3200	0	4640	80	80	0	273	43.5	4.90	88.8	13.7	.99	9.2	2.6	4.1	.3	.6	1.1	2.8	0	1	1
830	1	54	6500	4420	130	1430	65	390	0	216	32.1	3.44	93.4	11.4	.63	8.7	3.6	3.7	.2	.7	.8	2.0	0	1	1
831	1	52	9000	4410	0	3510	630	270	180	264	47.7	5.11	93.4	16.3	.74	8.5	3.1	3.6	.2	.8	.8	2.5	1	0	1
832	2	55	6100	2867	0	3111	61	61	0	202	38.0	4.63	82.1	12.7	1.81	8.8	4.0	4.1	.3	.7	.9	2.2	0	1	1
833	1	60	3700	1961	37	1295	185	148	74	222	43.2	5.23	82.6	14.3	.63	8.8	3.2	3.7	.2	.5	.8	1.7	0	0	1
834	1	59	8100	4698	0	3321	162	0	0	257	45.1	5.16	87.4	15.8	2.73	9.4	3.3	3.9	.3	.7	.9	2.3	0	1	1
835	2	59	9800	5978	98	3528	98	98	98	285	43.0	4.76	90.4	15.3	.53	8.9	4.0	3.6	.3	.8	.8	1.7	0	1	1
838	1	60	8800	4400	0	4048	352	0	0	220	48.1	5.20	92.5	16.4	.87	8.9	3.7	3.9	.3	.8	.7	1.8	1	0	1

COMPUTER LISTING OF 1993 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH	CAL	PHOS	EALB	AL1	AL3	BET	GAM	HBSA	AHSA	AHBC
840	1	63	7200	3024	0	2664	1008	576	0	279	44.0	5.59	78.8	15.5	1.20	8.8	2.4	4.1	.3	.8	.9	2.3	0	0	1
841	2	60	5700	3306	0	2052	114	171	57	196	36.5	4.12	88.7	12.6	1.05	9.1	3.6	3.6	.2	.8	.9	1.6	1	0	1
843	2	64	9200	5428	92	2116	276	1104	184	257	35.8	3.83	93.4	12.5	.24	9.7	3.9	3.6	.3	.9	.9	2.2	1	0	1
844	2	74	7600	2660	0	4712	228	0	0	200	43.8	4.82	90.8	14.3	1.40	9.8	5.1	4.1	.3	.9	.9	3.0	0	0	1
845	1	63	7500	3450	0	3450	225	300	75	221	41.5	4.77	87.0	13.4	1.36	8.6	4.3	3.8	.3	.8	.7	1.9	1	0	1
851	2	83	11700	6552	0	3393	0	1755	0	252	29.8	3.39	87.9	10.3	.99	8.7	3.8	3.0	.3	.7	.8	2.1	0	1	1
864	1	67	9400	3948	94	4418	564	282	94	325	29.3	3.29	89.2	9.8	1.95	9.0	3.5	3.4	.3	.7	.9	3.2	0	0	1
865	2	59	6900	2898	0	3519	138	207	138	273	39.3	4.50	91.3	13.9	2.24	8.5	3.3	3.7	.3	.6	.8	2.2	0	0	0
867	2	64	9200	5060	92	3220	368	460	0	227	43.6	4.82	90.4	15.7	.03	8.6	4.0	3.9	.3	.9	.9	1.9	0	1	1
868	1	69	5100	2805	0	1989	204	102	51	230	14.2	4.69	89.1	14.2	2.17	8.5	3.4	3.7	.3	.6	.8	1.9	0	0	0
879	2	39	7300	3650	0	2993	73	438	146	349	39.7	4.59	86.6	13.7	2.46	8.9	3.4	4.0	.2	.6	.8	2.7	0	1	1
881	1	60	6000	3420	0	2220	360	0	0	157	47.4	5.51	86.0	15.4	1.24	8.7	3.5	3.8	.3	.7	.8	2.3	1	0	1
882	1	59	5600	2912	0	2184	112	392	0	212	48.7	5.92	82.2	16.1	.52	9.3	3.6	3.5	.3	.7	.9	2.2	0	0	1
883	1	81	7400	2664	0	3996	222	296	222	195	39.5	3.95	99.9	13.8	4.12	9.1	3.9	3.8	.2	.6	.7	2.7	0	1	1
888	2	63	8000	4400	0	2960	320	240	0	224	38.2	4.29	89.1	13.3	.67	9.4	4.0	4.2	.2	.6	.8	2.0	0	1	1
896	2	53	7000	3150	0	3570	140	140	0	232	38.4	4.41	87.1	13.4	1.88	9.5	3.8	2.9	.3	1.1	1.1	2.4	0	0	1
911	2	40	6100	2867	0	2623	305	61	244	262	40.9	4.62	88.5	13.8	.45	9.0	3.9	3.9	.3	.7	.7	1.8	0	1	1
914	2	58	8700	4959	0	3045	0	696	0	265	34.3	4.03	85.1	12.0	1.25	8.8	4.1	3.5	.3	.7	1.0	2.1	0	0	1
920	1	61	6400	3712	128	2496	64	0	0	163	40.9	4.44	92.1	14.3	.83	8.8	3.1	3.7	.3	.6	.9	2.4	0	0	1
925	2	42	10900	7739	0	2616	327	218	0	390	39.3	4.77	82.3	12.7	1.22	9.1	3.3	3.8	.3	.6	.9	2.5	0	1	1
926	2	42	6700	3685	0	2278	335	201	134	190	39.2	4.67	83.9	13.9	1.06	8.8	3.4	3.0	.4	.7	.7	3.0	0	1	0
932	2	68	7200	3240	216	3240	288	216	216	284	35.2	3.87	91.0	12.2	2.23	9.2	3.5	4.2	.3	.8	1.0	2.5	0	1	0
934	2	68	9200	5428	0	2852	460	276	184	318	32.9	3.91	84.2	11.2	2.36	9.5	4.5	3.4	.3	1.0	1.0	2.5	0	0	1
938	2	60	9900	6435	0	2970	495	0	0	183	36.0	4.21	85.6	12.3	.87	8.4	3.7	3.4	.3	.5	.8	2.4	0	1	0
939	1	47	5700	2394	9999	2964	114	228	0	222	48.9	5.83	83.9	16.4	1.85	9.3	4.0	3.9	.2	.8	.9	2.2	0	1	1
942	2	78	5500	3080	55	2035	55	330	0	222	34.0	3.69	92.1	11.8	XXXXX	8.5	3.4	3.3	.3	.6	.8	2.5	0	1	0
944	1	68	6400	4608	0	1472	128	192	0	114	35.7	4.29	83.3	12.6	.30	8.6	3.0	3.6	.3	.8	1.0	1.9	0	0	0
955	2	41	8200	3772	0	4264	82	82	0	291	37.5	4.14	90.6	12.9	1.95	9.3	3.7	3.7	.2	.8	1.0	2.1	0	0	0
959	2	44	5700	3192	114	1881	285	114	114	267	39.0	4.45	87.7	13.4	1.60	8.9	4.4	2.9	.2	.7	.8	1.9	0	1	1
960	2	41	9700	5820	97	3007	291	388	97	306	37.4	4.39	85.3	12.3	1.79	9.5	4.3	3.4	.3	.8	.8	2.0	0	0	1
965	2	49	7800	4446	0	2574	468	312	0	343	38.8	4.51	86.0	13.0	1.77	9.6	4.3	3.4	.2	.6	1.0	2.4	0	0	1
966	1	61	7000	4690	0	2170	140	0	0	217	39.3	4.20	93.5	12.7	.92	9.2	3.2	3.7	.2	.5	.8	2.4	0	0	1
971	1	50	6800	4148	0	2312	136	204	0	322	46.1	5.31	86.9	15.3	.33	10.3	2.9	4.0	.2	.7	.8	2.2	0	0	1
977	2	47	8300	4814	83	2490	332	581	0	273	40.7	4.82	84.4	14.3	4.36	9.4	3.9	4.2	.2	.9	.8	2.5	0	1	1
980	2	41	9500	4845	0	4180	190	285	0	252	40.8	4.71	86.6	14.0	.63	9.3	4.1	3.7	.2	.8	.8	1.9	0	0	1
981	1	39	8000	5920	0	1520	480	160	0	295	46.3	5.03	92.0	16.4	.49	9.1	3.3	4.1	.2	.7	.8	2.2	0	0	0
993	2	46	6500	2990	130	3185	0	195	0	264	39.3	4.61	85.2	13.3	1.21	9.3	4.2	3.9	.2	.5	.8	1.7	0	1	0
998	2	45	8200	5904	0	2050	82	164	0	277	38.0	4.60	82.5	13.1	1.51	9.7	3.7	3.7	.4	1.1	.9	2.6	0	1	0
1001	2	59	7400	3774	74	3256	148	0	74	247	42.4	5.27	80.4	14.4	.61	9.5	4.1	4.0	.3	.9	.9	2.3	0	1	0
1007	1	82	5200	1976	0	2964	104	156	0	175	28.6	3.13	91.3	10.0	XXXXX	8.9	4.0	3.7	.3	.6	.8	2.7	0	1	0
1035	2	42	5900	2773	0	2773	118	177	59	285	39.7	4.57	86.8	14.0	1.10	9.1	3.6	3.8	.3	.9	1.1	1.8	0	0	0
1043	2	58	7500	4500	0	2475	300	225	0	273	44.2	5.33	82.9	14.3	1.29	9.5	4.0	3.9	.3	.8	.9	1.8	0	0	0
1505	2	54	3900	9999	9999	9999	9999	9999	9999	211	37.6	4.18	89.9	13.0	1.81	9.2	4.0	3.9	.3	.8	1.0	1.8	0	0	1
1506	2	85	9999	9999	9999	9999	9999	9999	9999	999	99.9	9.99	999.9	99.9	99.99	99.9	99.9	99.9	XXX	XXX	99.9	99.9	9	9	9
1519	1	50	6900	5106	0	1518	276	0	0	320	46.0	5.09	90.4	15.8	.98	9.3	3.7	4.3	.2	.6	.8	1.8	0	1	1
1520	2	62	5500	2750	55	2420	110	165	0	272	40.2	5.01	80.3	13.4	1.51	9.5	3.2	3.9	.3	.8	.9	1.9	0	0	1
1524	1	50	7900	5214	0	2370	158	0	158	223	46.9	5.03	92.8	16.4	1.65	8.4	3.8	3.8	.2	.8	.8	1.8	0	1	0
1533	1	40	8000	9999	9999	9999	9999	9999	9999	262	46.5	5.94	78.2	15.1	3.38	9.0	4.3	4.1	.3	.6	.7	2.0	1	0	1
1546	1	79	7200	3960	72	2736	288	144	72	84	37.0	4.22	87.7	12.6	99.99	99.9	99.9	99.9	XXX	XXX	99.9	99.9	9	9	9
1550	1	50	7600	4180	0	2584	380	456	0	322	37.6	4.26	88.2	13.0	1.93	9.4	4.1	3.9	.3	.7	.8	1.6	0	0	1
1552	1	63	6600	3960	0	1650	396	594	0	269	38.2	4.37	87.3	12.7	.99	8.7	3.3	3.8	.3	.7	.9	2.4	0	0	0
1553	1	41	9300	7254	93	1860	0	93	0	319	39.8	4.27	93.2	13.5	.82	9.2	3.2	3.9	.2	.7	.8	2.4	0	0	1
1555	2	50	10300	6695	0	2472	618	515	0	191	39.2	5.04	77.8	13.2	.95	9.3	4.7	3.5	.3	.8	.9	2.0	1	0	1
1556	2	48	5100	2754	0	1887	102	306	51	240	36.2	3.90	92.9	12.3	2.21	9.3	4.3	3.6	.2	.6	.8	2.0	0	0	1
1563	1	57	5600	2408	0	3136	56	0	0	241	40.3	4.43	91.0	14.5	1.73	9.6	2.9	3.8	.3	.6	.8	2.1	0	0	1

COMPUTER LISTING OF 1993 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH	CAL	PHOS	EALB	AL1	AL3	BET	GAM	HBSA	AHSA	AHBC
1564	2	44	12900	11094	0	1419	516	0	0	331	39.3	4.39	89.6	13.3	.37	9.4	2.8	3.7	.3	.9	.9	2.1	0	1	1
1572	1	45	6400	2880	64	2944	256	256	0	224	46.1	5.38	85.6	15.4	.84	9.0	3.9	3.8	.3	.6	1.0	1.8	0	0	1
1573	1	43	6900	3105	0	2829	621	345	0	149	45.4	4.86	93.5	16.0	23.40	9.0	3.5	3.8	.2	.6	.8	1.9	1	0	1
1577	2	42	8200	6068	0	1968	82	82	0	338	38.5	4.25	90.5	13.0	1.24	9.2	2.4	3.3	.4	.7	1.0	2.9	1	1	0
2102	1	49	8800	6160	0	2024	440	88	88	326	43.4	4.64	93.5	15.7	1.21	8.7	2.5	3.6	.3	.5	.7	2.2	0	1	1
2104	2	62	6900	4485	0	1725	276	276	138	299	39.0	4.32	90.2	13.5	4.34	8.8	3.3	3.7	.3	.9	.8	2.6	1	0	1
2106	1	43	14700	9999	9999	9999	9999	9999	9999	261	47.0	5.50	85.4	16.0	1.36	8.0	2.5	99.9	XXX	XXX	99.9	99.9	0	1	1
2107	2	64	14700	7350	0	4704	1176	1176	294	214	39.9	4.56	999.0	XXXX	1.87	9.3	3.3	3.7	.3	.8	.8	2.4	0	1	0
2108	1	49	5500	3025	0	1925	110	440	0	219	38.3	4.42	86.7	13.2	1.47	9.9	1.6	99.9	XXX	XXX	99.9	99.9	0	0	1
2110	1	86	4700	2538	47	1927	94	94	0	307	32.4	3.31	97.9	11.7	2.30	7.5	2.9	2.8	.3	.7	.8	2.8	0	1	1
2111	2	42	9100	5096	0	3276	0	637	91	371	41.7	5.27	79.1	14.3	1.10	8.6	3.3	3.8	.2	.7	.9	2.6	0	0	0
2113	2	43	11400	7182	0	3420	456	114	114	347	44.7	5.77	77.5	14.9	1.54	8.9	4.6	3.8	.3	.7	1.0	2.1	0	0	0
2114	1	79	8000	4640	0	2640	80	560	80	112	34.5	3.82	90.4	11.9	.87	8.6	3.5	3.4	.2	.6	.7	2.4	0	0	1
2115	1	39	10700	7169	0	3317	0	214	0	312	48.1	5.50	87.5	16.8	2.24	9.0	3.8	99.9	XXX	XXX	99.9	99.9	0	0	1
2119	2	57	6800	3400	0	2448	476	476	0	332	37.7	4.34	86.9	12.7	.61	9.0	3.3	3.5	.2	.7	.8	2.2	0	0	1
2126	2	47	8100	4212	0	9999	324	729	0	370	37.4	4.41	84.8	12.9	1.07	8.8	3.2	3.8	.2	.7	.8	2.2	0	1	1
2130	2	41	9200	6348	0	2208	368	276	0	242	37.4	4.30	87.0	12.6	1.74	8.6	3.7	3.6	.2	.8	.8	2.7	0	0	1
2132	2	40	5200	2548	0	1820	364	468	0	247	44.3	5.32	82.8	15.0	2.21	9.2	4.0	3.8	.2	.7	.9	2.6	0	0	0
2134	2	39	6900	4692	0	1380	621	2070	0	311	39.4	4.54	86.8	14.1	1.52	8.6	3.2	3.6	.3	.7	.8	2.7	1	0	1
2136	1	44	7200	4248	72	2520	288	72	0	255	40.3	4.40	91.6	13.7	1.72	8.9	3.6	3.8	.2	.6	.8	2.3	1	0	1
2138	2	43	7900	4819	0	2528	316	316	0	357	36.9	4.31	85.7	12.4	1.44	8.8	3.2	3.5	.2	.6	.6	2.1	0	0	1
2139	2	74	4200	2310	0	1722	84	0	84	223	24.9	2.65	94.0	8.3	2.81	9.0	3.5	3.6	.2	.8	.8	1.8	1	0	1
2142	1	44	7200	4176	0	2304	504	0	216	250	44.7	5.03	88.8	15.8	1.33	8.6	3.4	3.6	.3	.7	.8	2.0	1	0	1
2143	1	41	8900	5162	0	2848	534	356	0	346	45.3	5.47	82.9	14.9	3.37	9.7	4.3	4.3	.3	.8	1.0	2.1	0	1	1
2144	1	46	8800	4048	0	3608	616	528	0	202	49.4	5.09	97.0	17.4	3.11	9.1	3.8	4.1	.3	.6	.9	2.1	1	0	1
2145	1	71	6000	2640	0	2700	180	360	180	299	40.9	4.31	94.9	13.6	2.12	8.7	3.0	3.8	.2	.7	.9	2.3	0	0	1
2148	1	83	6500	6500	0	2470	260	195	0	137	32.4	3.55	91.4	11.5	1.58	8.0	2.9	3.5	.3	.6	.6	2.1	1	1	1
2149	2	47	6300	4032	0	1512	63	630	63	272	36.7	4.14	88.6	12.9	.50	9.0	4.0	3.8	.3	.8	.8	2.4	0	0	1
2150	1	51	9000	4500	0	3690	540	180	90	218	46.5	5.58	83.4	16.3	1.02	8.9	4.1	3.6	.3	.9	.8	1.9	0	0	1
2152	1	56	5400	2916	0	2160	162	108	54	257	44.4	5.00	88.7	15.8	2.31	8.8	3.1	3.9	.3	.7	.9	2.3	1	0	1
2153	1	40	4300	2494	0	1505	86	172	43	246	44.8	5.66	79.2	15.6	4.47	9.3	2.9	4.1	.3	.9	.9	2.6	0	1	1
2155	1	39	7100	3479	71	2698	426	426	0	211	48.4	5.64	85.8	16.9	1.31	9.4	2.5	3.8	.4	.9	.8	1.5	0	0	1
2156	1	48	4100	2173	0	1394	246	205	41	115	44.6	4.85	92.0	15.7	1.22	8.8	4.2	3.5	.2	.5	.7	2.5	1	0	1
2158	2	68	6500	3250	0	2665	325	130	130	296	38.2	4.32	88.4	13.4	1.33	8.7	3.3	3.2	.4	.8	.8	2.5	0	0	1
2160	2	43	7200	3960	0	2880	72	288	0	288	43.8	4.92	89.0	15.4	1.18	8.9	4.4	3.6	.3	.7	.8	1.9	0	1	1
2162	2	71	8100	4374	0	2997	162	486	81	305	35.0	4.30	81.5	11.5	2.10	9.0	4.5	2.9	.5	1.0	.9	3.2	1	0	1
2166	1	76	7300	3869	0	2701	292	511	0	234	43.4	5.03	86.3	14.2	4.66	9.2	3.8	3.6	.5	.9	.8	2.5	0	0	0
2167	1	53	10900	7194	0	2616	327	763	0	250	45.0	5.20	86.6	16.0	.40	9.1	3.7	3.9	.3	.7	.8	2.2	0	0	1
2171	2	41	9600	5472	0	2208	288	1632	0	308	39.5	4.49	87.9	13.7	30.98	8.5	3.6	3.7	.2	.8	.8	2.2	0	1	0
2172	2	51	7800	5538	0	1716	312	156	78	303	38.8	4.31	90.0	13.5	2.08	8.4	4.7	99.9	XXX	XXX	99.9	99.9	0	1	1
2174	1	39	8100	4374	0	2106	243	1215	162	290	45.9	5.39	85.1	16.1	2.37	8.8	3.7	3.8	.3	.6	.7	1.9	1	0	1
2175	1	0	9999	9999	9999	9999	9999	9999	9999	999	99.9	9.99	999.9	99.9	99.99	99.9	99.9	99.9	XXX	XXX	99.9	99.9	9	9	9
2176	1	49	7800	5538	0	1872	234	156	0	220	43.3	4.63	93.6	15.0	.77	9.9	4.5	3.9	.2	.7	.7	1.6	0	1	1
2179	1	42	8600	4386	86	3526	258	258	0	235	45.9	5.55	82.7	15.6	.91	9.4	3.4	4.2	.2	.8	.8	1.5	0	1	1
2188	1	42	7800	4524	0	1872	546	702	156	179	49.5	5.59	88.6	16.8	.94	9.0	3.3	3.8	.2	.7	.9	2.1	0	1	1
2195	2	63	6300	3150	0	2583	315	189	63	338	37.7	4.70	80.2	13.2	2.07	8.7	3.8	3.8	.2	.7	.8	1.4	0	1	1
2196	2	77	5800	2436	58	2146	232	870	58	275	34.9	4.03	86.7	12.3	5.70	9.1	3.4	3.5	.3	.7	.8	1.7	1	0	1
2197	2	40	7500	4050	0	3150	150	150	0	244	36.0	4.27	84.2	12.7	2.68	9.0	3.3	3.1	.3	.7	1.0	2.3	0	1	1
2206	1	71	5600	3416	0	1904	112	224	0	255	40.7	4.69	86.8	14.2	.66	9.0	3.8	3.9	.3	.7	.7	2.1	1	0	1
2207	1	44	9800	6958	0	2548	98	196	0	288	45.1	5.36	84.1	15.1	1.07	9.0	3.7	3.9	.3	.9	.8	1.8	0	0	0
2209	2	44	6300	3591	9999	2079	189	126	252	408	37.7	4.48	84.2	12.9	1.24	9.3	4.3	3.5	.2	.6	.8	2.4	0	1	0
2210	2	39	6800	4692	0	1836	136	136	0	292	38.9	4.41	88.3	13.2	1.59	9.0	3.6	3.6	.2	.6	.8	1.9	0	0	1
2213	2	40	8300	4150	0	3486	498	166	83	290	37.1	4.40	84.3	12.4	.40	8.6	3.2	4.0	.2	.6	.9	1.9	0	1	1
2215	2	72	10300	6489	0	3193	309	309	0	351	39.7	4.64	85.5	13.3	2.79	8.8	3.4	3.5	.3	.8	.7	2.2	1	0	9
2216	2	73	12600	7560	0	3024	630	1134	252	730	40.5	4.85	83.5	14.0	.36	9.0	3.8	3.4	.3	.7	.8	3.1	0	1	1

COMPUTER LISTING OF 1993 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH	CAL	PHOS	EALB	AL1	AL3	BET	GAM	HBSA	AHSA	AHBC
2217	2	60	8900	5340	0	3471	89	0	0	265	37.1	4.04	91.9	13.0	2.07	9.1	4.3	3.4	.5	1.0	.9	2.9	0	0	1
2220	2	64	7300	5548	0	1387	73	146	146	270	39.5	4.28	92.2	13.9	4.26	8.7	3.9	3.7	.2	.6	.8	2.5	0	1	0
2224	2	70	6400	3712	64	2176	256	192	0	325	34.7	3.71	93.5	11.9	1.26	8.0	3.3	3.9	.3	.8	.8	1.8	0	0	0
2225	2	45	8900	6408	0	1780	356	356	0	306	33.2	3.85	83.7	10.8	3.19	8.0	3.5	3.0	.3	.7	.9	2.7	0	1	0
2226	2	40	7600	4560	76	2584	304	76	0	337	38.7	5.21	74.2	12.6	3.25	7.5	2.7	3.2	.3	.7	.9	2.8	1	0	1
2227	2	43	9500	5130	0	3990	190	190	0	324	34.1	4.36	78.2	11.0	3.04	8.5	3.7	3.7	.3	.7	1.0	2.5	0	0	0
2228	2	47	16900	10816	169	4901	845	338	0	363	39.4	4.63	85.2	13.5	1.03	8.2	4.3	3.5	.3	.8	.9	2.2	0	0	0
2229	2	57	7400	3626	0	3108	296	370	0	245	40.8	4.60	88.6	13.9	1.25	8.9	3.9	3.6	.3	.6	.8	2.3	0	0	1
2230	2	51	6600	4356	0	1716	264	264	0	293	43.6	5.27	82.8	14.2	.75	9.1	3.6	3.9	.2	.7	.9	1.9	0	1	0
2231	2	40	5500	3685	0	1485	220	0	55	429	41.4	5.33	77.6	13.9	.66	8.8	3.9	3.9	.2	.6	1.1	2.7	0	0	1
2232	1	41	7800	3666	78	3120	624	312	0	999	52.1	5.48	95.1	17.8	4.03	8.7	3.6	3.5	.3	.5	.8	2.4	0	0	0
2234	1	51	8000	5520	0	2160	240	80	0	324	44.5	5.12	87.0	15.5	3.75	8.8	3.7	4.2	.2	.7	.7	2.3	0	0	1
2235	1	46	8600	5504	0	2666	172	258	0	278	42.8	4.89	87.6	15.1	.70	8.9	3.2	4.2	.3	.7	.9	2.6	0	1	1
2236	1	50	6500	3055	0	2860	130	455	0	312	44.3	5.31	82.8	15.1	6.29	9.4	5.1	3.9	.2	.9	.8	2.9	0	0	1
2237	1	46	9100	9999	9999	9999	9999	9999	9999	335	38.1	4.21	90.5	13.2	1.24	9.2	3.8	4.1	.2	.7	.7	2.5	0	1	1
2239	2	42	5700	3363	114	1710	171	342	0	281	33.3	3.83	87.0	11.4	1.29	7.9	3.0	3.6	.3	.7	.8	2.7	0	1	1
2242	1	39	7000	4410	0	2450	0	140	0	274	42.0	4.52	92.9	14.6	1.08	8.9	3.9	3.9	.3	.6	.6	1.9	0	1	1
2244	2	83	18400	16192	552	1472	9999	184	0	72	29.8	3.30	90.2	10.5	99.99	6.8	4.4	99.9	XXX	XXX	99.9	99.9	9	9	9
2245	1	39	9999	9999	9999	9999	9999	9999	9999	999	99.9	9.99	999.9	99.9	99.99	99.9	99.9	99.9	XXX	XXX	99.9	99.9	9	9	9
2247	2	47	8600	4988	86	2838	86	602	0	240	36.3	4.44	81.8	11.7	.75	8.9	3.8	3.5	.3	.9	.9	2.6	1	0	1
2248	2	54	6800	4148	68	2108	204	204	68	314	41.7	5.11	81.6	14.1	0.00	9.4	4.3	3.5	.3	1.2	1.1	3.2	0	0	1
2250	1	49	6700	3350	0	2144	536	670	0	278	44.1	5.00	88.1	15.2	.92	8.2	3.6	4.0	.2	.5	.8	2.0	0	1	0
2251	2	44	10600	6572	0	3180	424	318	106	387	41.6	4.68	88.9	14.3	92.84	8.2	3.5	3.9	.2	.8	.9	2.8	0	1	0
2254	2	43	5600	3360	0	1848	168	224	0	378	39.7	4.99	79.6	13.4	3.57	8.2	2.8	3.9	.3	.9	1.0	2.7	0	1	0
2255	2	39	8200	4100	0	3444	164	410	82	224	39.9	4.65	85.7	13.4	1.58	8.7	3.2	3.8	.3	.7	.9	2.2	1	0	1
2256	2	44	7300	5037	73	1825	0	365	0	473	22.3	2.76	80.7	7.6	.46	6.6	3.0	2.7	.3	.8	.6	3.5	0	1	0
2257	1	46	5700	2679	0	2337	570	114	0	242	43.4	5.28	82.2	14.8	1.05	8.8	3.6	4.1	.3	.7	.8	1.5	1	0	1
2260	2	39	8600	4042	86	3784	86	430	172	346	40.0	4.72	84.8	13.9	1.31	9.3	3.6	4.1	.2	.8	1.0	2.0	0	1	1
2261	1	64	5400	3132	0	2052	54	216	0	211	48.3	5.23	92.3	16.7	3.00	8.1	2.9	4.1	.2	.5	.8	2.3	0	1	1
2269	1	38	9500	5605	0	2850	380	475	190	271	46.4	5.05	91.8	16.1	1.55	9.0	3.6	99.9	XXX	XXX	99.9	99.9	1	0	1
2271	1	38	1060	562	0	360	85	42	11	306	44.3	5.18	85.5	16.1	2.61	9.3	4.4	4.0	.2	.6	.8	1.7	0	1	1
2273	1	39	14100	10857	0	2397	705	141	0	337	51.6	6.13	84.1	17.3	1.32	9.3	3.8	4.4	.3	.7	1.0	1.8	0	0	0
2274	1	38	7400	3700	74	2960	592	74	0	294	46.4	5.37	86.4	15.6	1.75	9.0	3.1	4.2	.2	.5	1.0	2.0	0	1	1
2277	2	39	11800	8260	0	3422	118	0	0	188	37.1	4.77	77.7	11.8	1.89	9.6	3.7	3.7	.3	.7	1.0	3.4	0	0	1

COMPUTER LISTING OF 1994 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH
2	1	41	6900	4416	0	1794	207	483	0	188	43.8	4.62	94.8	15.4	5.42
3	1	41	11800	7670	99999	2124	826	826	236	208	47.5	5.35	88.7	16.1	7.82
5	1	41	5400	1944	0	2052	486	810	0	202	46.0	4.99	92.2	15.8	7.43
6	1	41	5200	2704	99999	1716	728	52	99999	199	45.9	4.92	93.2	15.9	2.50
7	1	74	6400	3264	64	1856	384	768	64	325	36.0	3.97	90.8	13.0	2.78
8	2	41	9300	5115	0	2697	1023	279	186	314	37.0	4.01	92.3	13.6	2.51
9	1	60	10900	8066	218	1635	654	327	0	163	44.2	4.91	90.1	15.2	1.15
14	2	64	8800	4048	88	4136	264	264	99999	220	40.3	4.09	98.5	13.5	2.11
15	2	47	10600	6042	0	3922	318	318	0	330	39.8	4.34	91.8	13.2	2.03
16	1	79	6200	3534	0	2170	310	186	0	225	39.9	5.42	73.7	12.8	7.03
17	2	43	6500	3445	0	2470	130	455	0	209	37.0	4.40	86.0	13.2	3.48
18	2	61	8400	5292	99999	2520	336	84	168	278	38.6	4.46	86.5	13.5	0.00
19	1	45	6100	3904	99999	1708	305	122	61	217	44.9	6.06	74.1	14.9	.38
20	1	46	8400	5292	0	2100	504	420	84	228	47.6	5.69	83.7	16.4	1.48
21	2	42	6600	3894	0	1518	0	1188	0	249	34.9	4.49	77.8	11.9	.11
22	2	56	4600	2024	0	2162	92	322	0	231	37.8	4.21	89.7	12.9	1.77
23	1	43	7500	3675	0	3375	300	150	0	229	45.1	5.29	85.2	14.8	5.03
24	2	54	5400	3456	0	1890	54	0	0	190	41.3	4.78	86.3	14.7	1.60
27	1	66	9600	5472	0	3360	192	384	192	176	39.0	3.98	98.1	14.6	1.84
33	2	41	9200	5888	0	2760	276	276	0	321	40.1	4.47	89.8	14.2	36.14
36	1	47	9200	7268	0	1564	184	92	92	236	34.8	3.63	95.8	11.7	61.35
37	1	60	4200	3234	42	714	42	168	0	119	33.2	3.68	90.3	11.5	5.41
39	2	54	7500	3000	99999	4125	225	150	99999	374	37.3	4.19	85.0	12.9	1.94
40	1	69	4400	1760	44	1584	264	616	132	202	38.2	4.35	87.9	13.3	.15
42	2	42	8400	5040	84	2436	336	420	84	177	39.3	4.11	95.5	14.9	2.08
44	1	44	6200	3286	99999	2232	434	248	99999	237	48.5	5.82	83.4	16.5	.53
45	2	71	7800	4446	99999	2730	468	78	78	266	31.6	3.47	91.2	12.5	.48
47	1	48	9200	6440	92	2024	368	1840	92	203	47.7	4.97	95.9	17.5	.96
48	2	45	6500	3445	0	2470	520	0	65	251	39.1	4.16	94.1	13.7	1.06
49	2	56	6400	3904	0	2048	320	64	64	220	42.9	4.91	87.3	14.6	1.68
53	2	47	7500	4200	0	2025	450	600	3	341	39.4	4.42	89.2	13.5	2.87
61	2	48	8100	3321	0	3402	729	648	0	79	34.2	4.06	84.2	12.0	11.65
63	2	75	6000	3120	99999	2460	99999	420	99999	189	40.6	4.64	87.6	13.7	1.58
64	2	70	5800	2745	0	3172	61	0	122	196	36.6	3.94	93.0	12.6	999.99
65	2	41	6700	3551	0	2211	134	737	67	261	31.6	3.58	88.2	11.1	8.73
66	2	69	8900	3026	99999	4806	712	356	99999	181	37.9	4.22	89.8	13.2	2.31
67	2	53	6200	3410	0	1984	434	248	124	203	39.5	4.19	94.2	13.7	5.82
70	2	56	5500	2860	99999	2255	110	165	110	191	39.4	4.99	79.0	14.0	0.00
71	2	66	7200	3816	0	2808	144	360	72	206	36.3	3.89	93.3	12.7	3.33
72	2	47	8300	5395	83	2158	498	166	0	369	37.6	4.21	88.0	12.9	35.15
73	1	58	6200	4712	62	1054	310	0	62	237	46.6	4.93	94.6	16.4	.45
74	2	55	11300	6215	0	3729	339	1017	0	193	44.8	5.04	88.8	16.3	.74
75	2	51	9300	5766	93	2232	93	1023	93	223	40.1	4.55	88.2	13.4	.72
76	1	50	7000	3640	0	2380	560	350	70	169	42.4	4.62	91.7	14.1	2.98
77	1	64	5600	3696	0	1344	392	112	56	234	38.6	4.41	87.6	13.3	1.67
78	2	75	6400	3008	256	2560	320	192	64	279	35.1	3.74	98.3	12.4	5.02
81	2	48	6300	3654	0	2268	189	189	0	263	40.4	4.47	90.4	13.7	2.39
83	1	39	5800	2378	0	2784	232	406	0	138	47.9	4.92	97.4	17.5	2.60
85	1	39	8300	5312	0	1992	332	664	0	190	46.5	5.21	89.2	16.2	1.48
86	2	40	7900	5293	0	1896	395	316	0	263	38.0	4.51	84.2	13.3	2.63
805	2	40	6700	2546	99999	3417	268	469	99999	282	37.4	4.63	80.7	12.4	1.54
816	2	44	9200	4324	0	2668	644	1564	0	229	37.5	4.27	87.8	13.1	.79
822	1	48	7700	4543	0	1540	308	385	154	248	43.5	4.96	87.8	14.6	.46
823	1	51	4200	2604	0	1176	84	294	42	192	42.8	4.67	91.6	15.1	.46

COMPUTER LISTING OF 1994 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH
825	2	52	6200	2914	0	2790	310	186	0	255	39.4	4.54	86.7	13.4	2.20
830	1	55	6600	4422	99999	1584	264	264	66	230	41.8	4.51	92.6	14.7	1.38
831	1	54	6300	3087	63	2331	441	315	63	226	45.9	5.08	90.3	15.5	1.61
832	2	56	7700	4389	0	2695	385	231	0	213	40.2	4.97	80.8	13.3	3.13
833	1	61	4400	2156	88	1892	264	0	0	214	43.2	5.22	82.7	14.7	1.29
834	1	60	8000	4800	0	2640	320	240	0	241	45.2	5.13	88.2	15.7	3.29
835	2	60	10900	6213	0	3052	436	981	218	248	48.2	5.42	89.0	17.6	1.38
838	1	61	7300	4964	0	1971	146	146	73	202	48.1	5.19	92.6	16.5	.69
840	1	64	7200	4176	0	2448	360	216	0	256	42.3	5.48	77.2	14.1	.57
841	2	61	5900	3835	0	1652	118	295	0	193	38.5	4.44	86.6	13.2	1.57
843	2	65	5500	2640	55	2145	165	440	55	217	36.4	3.83	95.1	13.1	.99
844	2	75	4900	2597	0	1862	392	0	49	183	36.8	4.07	90.4	12.2	1.38
845	1	64	8100	5427	81	2268	324	0	0	209	41.9	4.84	86.5	14.2	2.36
864	1	68	10600	5194	0	4664	530	212	0	224	35.8	4.13	86.7	12.0	1.28
865	2	61	7500	5625	75	1275	375	150	0	381	33.9	3.76	90.2	12.3	1.99
867	2	65	8300	5063	0	2988	83	0	83	207	40.7	4.43	91.9	14.9	.41
868	1	71	5400	3132	0	918	486	810	54	162	40.9	4.73	86.5	14.1	1.77
881	1	61	6600	3498	0	2244	330	528	0	142	47.3	5.35	88.5	16.1	1.30
882	1	60	5200	2600	0	2028	364	208	0	119	46.4	5.73	80.9	16.0	.68
896	2	54	8800	4488	88	3344	528	176	176	216	41.5	4.86	85.3	14.5	1.73
911	2	41	4800	2736	0	1392	384	192	96	280	39.2	4.50	87.0	13.8	.45
914	2	59	8300	4897	0	1992	581	830	0	218	34.2	4.05	84.4	12.3	1.12
920	1	62	5000	2000	50	2500	300	99999	0	143	39.1	4.33	90.4	13.8	999.99
926	2	43	5600	3640	0	1624	168	112	56	175	35.5	4.09	86.9	12.7	1.45
931	1	40	6800	3876	99999	2380	204	272	99999	263	44.4	4.88	91.0	15.9	.99
932	2	69	9000	3431	0	2482	292	1022	73	238	36.3	3.95	91.8	13.0	2.76
934	2	69	7900	3819	0	2211	134	469	67	294	33.7	4.11	82.0	11.9	2.84
938	2	61	6500	3510	0	2340	65	585	99999	156	36.2	4.19	86.3	12.6	1.16
939	1	48	6400	3520	0	2240	128	448	0	176	49.1	5.82	84.3	16.8	2.17
942	2	79	6200	3658	0	1860	248	434	0	257	33.6	3.69	91.1	11.6	87.41
944	1	69	8200	5248	99999	2214	410	82	246	151	43.6	5.24	83.2	15.7	.28
955	2	41	9400	99999	99999	99999	99999	99999	99999	257	39.8	4.35	91.6	14.2	2.45
959	2	46	7700	4851	0	2541	0	231	77	233	31.8	3.79	83.8	11.3	2.28
960	2	42	8900	99999	0	3827	267	89	0	241	38.2	4.50	84.8	13.1	2.14
963	1	66	9400	5828	0	2914	470	94	94	222	44.6	5.05	88.3	14.9	2.71
966	1	62	5000	2992	44	1144	88	88	44	198	41.2	4.47	92.1	14.2	1.20
971	1	51	9700	5820	0	3395	194	97	194	323	43.6	5.06	86.1	15.2	1.97
977	2	48	11600	6728	0	3480	232	928	232	247	33.8	4.03	83.8	12.0	3.64
980	2	41	6600	3168	0	2772	396	198	66	247	41.3	4.75	86.9	15.0	1.58
981	1	40	6700	4958	0	1340	268	134	0	204	45.2	5.03	89.9	15.9	.90
986	2	39	99999	99999	99999	99999	99999	99999	99999	999	99.9	9.99	999.9	99.9	999.99
993	2	47	7100	3195	0	2911	355	639	0	205	38.6	4.67	82.7	13.6	1.82
998	2	46	7500	4275	0	2700	225	225	75	64	38.5	4.68	82.2	13.7	1.78
1001	2	60	6300	3024	0	2898	189	189	0	173	37.9	4.77	79.4	13.0	1.49
1007	1	83	99999	99999	99999	99999	99999	99999	99999	999	99.9	9.99	999.9	99.9	999.99
1035	2	43	9500	5890	99999	2755	285	380	190	305	43.2	5.04	85.8	15.1	1.25
1036	1	42	6400	3968	0	1728	640	64	0	145	48.8	5.80	84.1	17.0	1.35
1519	1	51	4800	3264	0	1200	288	48	0	223	46.6	5.20	89.6	16.1	.57
1524	1	51	8200	4182	0	3444	164	246	164	181	47.9	5.22	91.7	16.7	2.45
1541	2	66	9100	4368	0	3094	637	1001	0	261	39.8	4.55	87.5	13.3	2.09
1542	2	41	6100	1769	0	3416	427	427	0	235	42.6	5.42	78.6	15.0	1.31
1550	1	51	10100	99999	99999	99999	99999	99999	99999	302	12.8	4.16	89.2	12.8	2.04
1552	1	64	5000	2500	50	1300	350	750	50	197	34.4	3.99	86.3	11.9	1.38
1555	2	51	9800	6566	0	2450	294	294	196	221	41.0	5.31	77.3	14.0	.67

COMPUTER LISTING OF 1994 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH
1556	2	49	4200	1386	42	2478	84	210	99999	223	36.8	3.96	93.0	12.9	3.66
1558	2	44	10100	6464	0	2828	101	707	74	318	40.1	4.50	89.2	14.0	1.06
1559	2	41	8100	2997	99999	4293	567	162	99999	218	43.3	5.48	79.1	14.0	1.76
1564	2	45	8300	3735	0	3735	415	332	83	234	40.0	4.68	85.4	13.8	.17
1567	2	40	7500	4500	99999	1800	450	600	150	249	36.8	4.29	85.8	12.8	1.22
1573	1	44	6000	1	99999	0	0	0	99999	166	48.0	5.17	92.6	15.9	11.97
1577	2	43	8700	6003	0	2262	261	174	76	294	39.4	4.40	89.6	13.7	1.21
2102	1	50	8300	4570	0	3150	4150	0	664	283	45.4	4.91	92.4	17.0	.96
2104	2	63	99999	99999	99999	99999	99999	99999	99999	999	99.9	9.99	999.9	99.9	999.99
2106	1	44	11200	8064	224	1904	224	784	0	255	44.5	5.41	82.3	16.6	1.32
2107	2	65	12100	6413	0	4235	242	847	363	217	36.6	4.24	86.4	12.9	2.30
2108	1	50	6900	3795	99999	2553	207	207	69	207	42.2	4.86	86.8	15.2	2.32
2110	1	87	6900	5589	207	690	414	0	0	330	25.3	2.45	103.1	8.8	21.68
2113	2	45	6700	3283	0	2680	335	402	0	285	39.6	5.17	76.6	13.4	2.42
2114	1	80	10500	7245	99999	2310	420	525	99999	211	36.1	4.17	86.6	12.6	1.50
2115	1	40	14400	9936	0	3456	720	288	0	282	50.6	5.76	87.9	18.1	2.84
2117	2	64	8000	4800	160	2640	240	80	80	273	42.1	4.70	89.5	15.2	2.54
2119	2	58	5800	3770	99999	1390	1334	2030	348	269	40.6	4.72	86.0	14.2	.64
2126	2	48	8400	4956	84	2688	168	504	0	362	37.6	4.36	86.3	13.0	.86
2130	2	42	7800	4992	0	1716	390	624	78	177	37.8	4.39	86.2	13.0	2.29
2132	2	41	5900	3540	0	1947	236	177	0	224	41.7	5.13	81.3	14.8	2.57
2134	2	41	6600	3762	198	1848	660	66	66	204	38.7	4.57	84.6	13.8	1.87
2136	1	44	7500	5180	0	1730	3900	525	130	250	42.9	4.66	92.0	14.8	1.82
2138	2	44	8100	5430	99999	1940	2592	3321	99999	315	36.9	4.31	85.7	13.3	1.36
2139	2	75	6400	3520	99999	1470	4096	4480	384	278	33.4	3.58	93.3	11.5	5.15
2142	1	45	6000	3540	0	2160	240	60	60	216	41.0	4.31	87.1	14.9	1.23
2143	1	42	7100	4615	0	1917	355	213	0	261	42.5	5.17	82.3	14.0	2.35
2144	1	47	99999	99999	99999	99999	99999	99999	99999	999	99.9	9.99	999.9	99.9	999.99
2145	1	73	7000	3920	0	2380	420	210	70	337	39.2	4.14	94.7	13.0	2.43
2148	1	84	5900	2300	99999	2710	3835	1062	354	152	33.9	3.69	91.8	12.0	3.57
2149	2	48	9400	4512	0	3102	376	1316	94	280	35.3	4.05	87.2	12.4	2.72
2150	1	52	9800	8036	98	980	392	294	99999	196	48.8	5.81	84.0	16.6	.77
2152	1	57	5100	2856	51	1632	357	102	102	230	44.3	4.97	89.1	16.2	.16
2155	1	40	6000	3300	99999	1980	2880	1440	99999	190	49.1	5.79	84.8	17.5	.77
2156	1	49	4200	2940	42	672	546	42	0	117	41.8	4.66	89.7	14.4	.44
2158	2	69	8100	4212	0	3078	162	486	162	286	37.6	4.30	87.4	12.7	1.14
2160	2	44	7800	4758	0	2184	468	390	0	310	41.8	4.78	87.4	14.3	1.91
2167	1	54	8300	5893	0	2324	83	99999	99999	212	41.5	4.71	88.1	15.6	1.19
2171	2	42	7900	4368	0	2964	312	156	0	244	38.8	4.41	87.9	13.3	37.91
2172	2	52	6200	3100	99999	2980	372	372	99999	214	40.2	4.56	88.2	14.0	3.13
2174	1	40	9500	4940	99999	2380	4465	1710	99999	266	45.4	5.31	85.5	16.1	1.82
2176	1	50	6300	4030	378	1830	819	1197	378	254	43.1	4.61	93.5	15.3	.65
2179	1	43	8400	4200	84	3444	168	504	99999	245	51.1	6.23	82.0	17.5	1.23
2188	1	43	5800	3190	0	2088	406	58	0	161	44.7	5.13	87.2	15.6	1.33
2195	2	64	7100	4686	0	1420	355	639	0	284	42.0	5.24	80.1	14.1	.89
2196	2	78	8600	5680	99999	1890	2236	3698	2924	294	37.2	4.16	89.4	13.1	6.78
2197	2	41	7100	4050	99999	2840	497	497	497	216	35.6	4.29	83.0	12.8	2.55
2206	1	72	5800	3070	99999	2200	1682	1334	1334	202	39.1	4.55	86.0	14.4	.90
2207	1	45	8400	5124	84	2940	0	168	84	239	44.1	5.29	83.6	15.1	1.86
2209	2	45	10200	6732	99999	2550	204	612	102	411	32.8	4.28	76.7	10.9	1.05
2210	2	40	5300	2810	99999	2010	265	2226	99999	220	37.8	4.35	87.0	13.6	.97
2213	2	41	8800	4664	88	2904	704	264	0	295	38.0	4.56	83.3	13.0	.37
2215	2	73	8600	4730	99999	2920	5934	1462	774	34	40.1	4.72	84.9	13.5	.38
2216	2	74	11600	7076	0	3016	1160	232	116	693	37.9	4.58	82.8	13.2	1.44

COMPUTER LISTING OF 1994 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH
2217	2	61	6600	3498	132	2376	330	198	66	247	38.1	4.29	88.9	13.4	2.23
2220	2	65	7100	3337	0	2627	710	426	0	230	41.8	4.64	90.0	14.8	4.08
2224	2	71	7600	3720	608	2740	3496	4636	99999	313	33.4	3.61	92.4	11.5	2.11
2225	2	47	7500	5550	0	1425	300	225	0	288	32.4	4.06	79.9	11.0	4.38
2226	2	41	7300	4672	0	2190	219	73	0	232	38.0	4.98	76.3	12.6	3.78
2227	2	44	9400	4425	0	2625	225	225	0	320	34.9	4.55	76.6	11.4	2.05
2228	2	48	13300	8510	99999	3720	8911	5320	1729	334	39.8	4.68	85.1	13.8	1.33
2229	2	58	7800	4212	78	2886	312	312	0	259	43.0	4.86	88.4	14.7	23.00
2230	2	52	6900	3933	138	2415	0	345	69	311	44.2	5.40	81.8	15.0	1.07
2231	2	41	6300	4788	63	1197	63	126	0	366	38.1	5.03	75.7	13.0	.97
2232	1	42	12700	8763	0	3048	762	127	0	201	49.5	5.26	94.2	18.0	3.25
2234	1	52	8800	5104	88	2112	440	88	88	314	44.8	5.25	85.4	15.7	7.07
2235	1	47	8300	4399	83	2573	498	249	166	215	41.4	4.73	87.5	14.6	1.43
2236	1	51	8600	5762	0	1978	258	430	172	287	40.3	4.99	80.7	14.2	4.34
2239	2	43	7000	4130	0	2030	350	420	70	305	37.6	4.30	87.5	13.4	2.15
2242	1	40	6100	4392	0	1159	122	427	0	234	43.6	4.88	89.4	15.7	1.26
2245	1	40	8000	5040	0	2240	480	160	0	280	47.3	5.07	93.2	16.5	1.28
2247	2	48	7900	5060	0	1900	4977	2528	66	220	29.7	3.74	79.4	9.9	1.12
2250	1	50	7900	5214	0	1896	79	632	79	266	47.2	5.63	83.8	16.3	1.04
2251	2	45	7400	4440	0	1776	296	814	74	300	38.0	4.13	92.1	13.6	56.86
2254	2	44	5600	2688	56	1960	336	504	56	325	39.7	4.88	81.3	13.1	5.47
2255	2	40	7100	4331	0	1988	568	213	0	170	39.1	4.60	85.0	13.9	.93
2256	2	45	6900	3860	99999	2550	1932	966	483	337	27.4	3.27	83.8	9.6	.91
2257	1	47	3400	1734	99999	1122	306	99999	99999	220	99.9	5.32	80.4	14.7	999.99
2261	1	65	5700	2679	0	2280	570	171	0	163	48.8	5.36	91.0	16.8	2.95
2269	1	40	5800	3480	0	1624	464	174	58	233	41.9	4.52	92.6	15.0	2.00
2271	1	39	6000	3420	99999	2100	2160	720	99999	299	47.1	5.58	84.4	16.8	1.85
2273	1	39	7200	4536	0	2232	144	216	72	261	48.7	5.79	84.1	17.3	3.24
2274	1	39	7500	3680	99999	3680	99999	1125	99999	271	43.4	5.14	84.5	15.2	1.51
2277	2	40	8900	6319	0	1869	356	267	89	198	40.5	5.44	74.5	13.2	2.29
2548	1	39	7300	4891	0	1533	438	292	146	248	45.3	5.09	89.0	15.7	1.77

COMPUTER LISTING OF 1995 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH	CAL	PHOS	ALB	PRL
2	1	42	7100	3968	9999	1536	576	256	9999	194	47.2	4.94	95.6	16.1	8.62	9.3	2.9	4.2	8.0
5	1	42	6500	3185	0	2795	130	325	65	179	42.6	4.55	93.7	15.2	13.85	9.1	3.6	4.1	7.6
6	1	42	8200	4838	0	2542	574	246	0	177	43.3	4.72	91.8	15.2	.07	9.1	3.2	3.8	13.7
7	1	75	7000	3780	70	2170	420	490	70	260	35.4	3.92	90.3	12.2	1.98	9.4	4.0	3.4	11.8
8	2	43	8600	5418	9999	2580	86	9999	9999	275	36.1	3.82	94.5	13.7	.90	10.0	3.3	4.4	5.0
9	1	61	7700	9999	9999	9999	9999	9999	9999	157	43.8	4.91	89.2	14.8	1.00	9.5	3.3	4.5	99.9
14	2	65	6100	2623	0	2867	366	183	61	218	35.9	3.74	96.1	12.5	.47	9.5	4.8	4.0	8.0
15	2	48	8800	5280	0	2640	352	440	88	298	39.4	4.27	92.3	13.1	34.22	8.1	4.2	3.9	10.6
17	2	44	7600	5168	0	1748	152	532	0	182	35.4	4.13	85.6	12.2	1.03	8.6	3.7	3.9	24.4
18	2	62	5900	3540	0	1416	413	413	118	258	37.0	4.30	86.1	12.9	.64	9.1	3.7	4.5	26.5
19	1	46	5500	3080	0	1925	110	385	0	207	44.8	6.06	73.9	14.3	11.91	9.4	3.3	3.9	7.2
20	1	47	6000	3060	0	1800	660	420	60	184	45.1	5.45	82.8	15.8	2.35	9.5	2.7	4.0	5.5
21	2	44	7000	4620	0	1750	140	420	70	238	33.7	4.36	77.3	11.5	.11	7.1	6.0	3.6	8.2
22	2	56	4900	2623	9999	3050	61	366	9999	221	37.6	4.15	90.5	13.1	2.41	9.3	4.1	3.7	7.1
23	1	44	8300	3735	0	3569	498	249	332	225	43.8	5.11	85.8	14.9	5.12	9.5	3.8	3.8	9.1
24	2	54	6200	2277	9999	4002	345	276	9999	200	41.4	4.74	87.4	14.8	2.21	9.3	3.7	4.0	3.0
26	1	53	9999	9999	9999	9999	9999	9999	9999	999	99.9	9.99	999.9	99.9	99.99	99.9	99.9	99.9	99.9
27	1	67	8400	4116	0	2856	168	1176	84	166	40.0	4.02	99.6	14.9	2.30	9.2	3.5	3.9	7.1
33	2	43	7800	4134	9999	2964	468	156	78	392	40.1	4.57	87.8	14.6	33.10	9.6	3.6	4.1	8.8
36	1	48	7000	4060	0	2660	70	70	140	275	33.0	3.58	92.1	11.3	87.49	9.1	3.2	4.0	8.7
39	2	55	7900	4345	0	3081	395	0	79	410	38.6	4.35	88.7	13.2	2.19	9.3	4.0	3.9	3.3
40	1	70	4500	1800	0	2250	135	270	45	211	39.0	4.43	88.4	13.3	.11	9.2	2.9	3.9	5.7
42	2	44	6400	3968	0	1536	576	192	128	155	35.9	3.95	99.1	14.2	4.69	9.2	3.7	3.9	4.3
44	1	45	6500	3705	0	2600	195	0	0	215	49.8	6.01	82.8	16.0	.80	9.1	2.8	4.2	8.4
45	2	73	4900	2156	0	2254	196	245	49	234	34.1	3.73	91.5	12.3	2.54	9.0	4.1	3.6	11.3
47	1	49	7700	5005	0	2002	308	308	77	201	48.8	5.12	95.4	17.0	.80	9.7	2.9	4.3	3.8
48	2	46	5600	3528	0	1624	168	9999	0	177	38.4	4.10	93.7	13.6	2.17	9.0	4.0	3.7	7.1
49	2	57	6100	3294	0	2440	183	61	122	204	39.5	4.48	88.1	13.3	.16	9.2	3.6	3.7	3.8
52	2	87	9999	9999	9999	9999	9999	9999	9999	999	99.9	9.99	999.9	99.9	99.99	99.9	99.9	99.9	99.9
53	2	48	7400	4144	0	2738	148	222	148	296	42.4	4.86	87.3	14.6	2.25	9.6	3.7	4.2	7.2
61	2	49	6700	3350	9999	2412	268	603	67	198	37.5	4.38	85.6	13.7	20.20	9.5	3.8	3.8	16.7
63	2	76	7000	4130	0	2450	280	210	0	170	39.2	4.35	90.1	13.3	99.99	9.2	3.8	3.6	3.6
64	2	71	4600	1428	9999	2226	252	252	42	177	34.8	9.99	91.7	12.3	55.99	9.0	4.0	3.4	7.5
65	2	42	8000	5360	80	720	560	1200	80	315	34.4	3.99	86.1	11.8	3.62	8.9	3.8	3.8	51.9
66	2	70	7800	4602	0	2106	624	312	78	181	38.5	4.38	87.5	13.4	49.18	9.3	3.4	3.7	9.7
67	2	54	6600	3762	66	2046	594	132	0	210	38.8	4.08	95.0	13.6	.58	9.4	4.1	3.9	4.1
70	2	57	5400	2754	0	2214	270	162	0	209	35.5	4.32	82.1	12.9	88.72	8.7	3.2	3.7	12.2
71	2	67	8200	5248	0	2706	82	82	82	218	37.0	3.99	92.8	13.2	3.71	8.8	3.6	3.6	5.3
72	2	48	6800	3808	9999	2108	476	408	9999	317	39.9	4.50	88.7	13.6	68.00	10.0	3.1	3.9	20.4
73	1	59	6300	4914	9999	945	189	252	9999	159	45.3	4.86	93.3	15.6	.40	9.3	2.9	4.0	5.5
74	2	56	8700	3915	0	3915	261	522	87	163	45.0	5.08	88.6	16.0	9.73	9.0	3.4	3.4	4.9
75	2	52	10300	5253	0	4017	412	618	0	234	42.6	4.84	88.0	14.1	4.93	9.4	3.9	3.9	6.2
78	2	76	5900	39	59	3363	118	59	0	286	30.9	3.14	98.5	10.9	5.56	8.7	3.7	2.8	11.1
81	2	49	5600	2744	0	2184	336	280	56	234	35.8	4.05	88.5	12.4	3.71	9.2	3.5	4.0	14.3
83	1	40	4100	1189	0	2050	410	451	0	154	46.4	4.71	98.6	17.0	3.74	8.9	2.5	3.6	14.6
84	1	40	4300	1892	0	1978	172	258	0	310	45.7	5.10	89.6	15.9	.19	9.0	3.1	4.1	24.0
85	1	40	7300	3723	0	2920	365	146	146	219	45.3	4.98	91.0	15.7	1.81	9.4	3.8	3.8	5.9
86	2	41	8200	6396	9999	1394	328	82	9999	263	38.0	4.54	33.8	13.1	2.60	9.4	3.8	4.0	9.1
805	2	41	6100	2318	9999	2562	305	793	122	287	35.0	4.30	81.4	12.0	99.99	99.9	99.9	99.9	99.9
816	2	45	6000	3540	0	1980	240	240	0	267	37.9	4.43	85.5	12.4	.80	9.2	2.8	3.6	99.9
823	1	52	4300	2021	43	1333	387	344	172	211	43.3	4.77	90.7	15.8	.60	9.5	3.2	4.2	6.1
825	2	53	5700	2565	0	2565	285	228	57	240	38.0	4.34	87.5	13.4	1.77	10.6	3.6	4.1	21.9
827	1	55	7500	4500	0	2100	675	225	0	211	42.3	4.83	87.6	13.7	1.03	10.1	2.9	4.2	99.9
830	1	56	5200	3172	0	884	104	936	104	276	38.1	4.29	88.9	13.3	.92	9.9	3.9	3.3	99.9
831	1	54	6200	1650	9999	2600	250	400	100	232	4.6	5.01	92.2	15.5	1.12	9.9	3.6	3.7	99.9

COMPUTER LISTING OF 1995 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH	CAL	PHOS	ALB	PRL
832	2	57	6900	3519	0	2829	345	207	0	183	39.8	4.92	80.9	13.3	2.00	10.0	3.3	4.0	6.2
833	1	62	3400	1700	0	1564	34	34	68	200	41.1	4.94	83.2	13.9	.75	9.6	3.0	3.8	99.9
834	1	61	6400	3520	0	2560	256	64	0	213	42.7	4.95	86.2	14.4	4.44	9.9	3.4	4.1	99.9
835	2	61	8500	4420	0	3570	170	170	170	234	42.2	4.62	91.4	15.3	.76	10.1	4.1	3.9	99.9
838	1	62	7500	4425	9999	2175	75	9999	150	229	46.7	5.08	92.0	16.6	1.00	9.4	3.3	4.2	99.9
840	1	65	8700	3864	9999	3128	552	1564	92	284	44.1	5.62	78.5	15.0	2.04	9.8	3.7	4.8	99.9
841	2	62	5900	2891	0	2596	0	354	59	188	35.2	3.97	88.7	12.4	.12	10.0	3.4	4.0	99.9
843	2	66	6000	3540	9999	1920	300	180	60	181	32.0	3.41	93.7	11.3	99.99	99.9	99.9	99.9	99.9
844	2	76	8500	2891	59	2301	177	354	59	191	38.9	4.26	91.4	12.9	1.29	9.8	3.9	3.7	7.9
845	1	65	6000	2340	120	2940	300	240	60	177	41.1	4.74	86.8	13.8	1.69	9.7	3.4	3.9	99.9
865	2	61	7300	1617	9999	2058	294	833	98	225	36.1	3.89	92.7	12.6	.03	9.4	3.4	3.3	99.9
867	2	66	8800	6248	88	1760	440	176	88	192	40.4	4.39	92.1	14.2	.35	9.8	4.4	3.5	99.9
868	1	72	5300	3969	9999	1953	63	252	63	167	41.2	4.73	87.2	13.9	2.13	9.7	3.3	3.8	6.0
881	1	62	8600	5762	0	2150	172	516	0	169	46.6	5.43	85.8	15.7	1.65	10.2	3.9	3.9	3.1
882	1	61	5200	2496	0	2444	104	0	156	162	45.6	5.63	81.0	15.8	.82	10.3	3.3	4.1	99.9
896	2	55	6100	2135	61	3111	366	305	122	205	38.6	4.53	85.1	13.0	1.21	10.2	3.2	3.9	5.3
911	2	42	4800	1680	9999	2688	288	144	9999	234	37.0	4.24	87.3	13.1	.90	8.4	3.1	3.9	99.9
920	1	63	6500	3510	9999	2470	130	325	65	161	38.0	4.13	91.9	13.7	1.10	9.2	3.3	3.9	4.3
932	2	70	7400	9999	9999	9999	9999	9999	9999	251	36.1	3.98	90.6	12.7	2.78	10.1	4.0	4.1	99.9
934	2	70	8700	4209	9999	1932	276	345	138	230	34.8	4.19	83.1	12.0	1.58	9.6	4.1	3.0	99.9
938	2	62	6800	4012	9999	2448	204	136	9999	133	35.0	4.08	85.9	13.0	1.80	9.0	4.2	3.9	5.5
939	1	49	5300	3445	53	1696	0	106	0	163	47.0	5.76	81.6	16.7	2.93	9.4	4.0	4.0	99.9
942	2	80	7100	4473	0	2343	142	71	71	172	31.3	3.46	90.4	10.8	99.99	9.9	3.2	3.9	99.9
955	2	42	8000	5120	0	2240	160	9999	160	237	38.9	4.22	92.1	13.5	1.85	10.1	4.0	4.1	4.4
959	2	46	6600	3630	0	2574	132	132	132	270	32.7	3.93	83.1	11.4	3.07	9.4	4.1	3.3	99.9
960	2	43	7600	3876	9999	2964	608	152	9999	231	37.1	4.42	84.0	13.1	2.70	10.0	3.6	4.1	99.9
963	1	67	6300	4158	126	1512	252	252	0	213	39.9	4.53	88.1	13.7	2.60	9.8	3.5	3.8	99.9
965	2	51	8900	5963	0	2581	178	178	0	328	42.4	5.01	84.7	14.2	1.36	10.4	3.8	3.7	99.9
966	1	63	4500	2700	0	1350	180	225	45	217	40.3	4.46	90.3	13.5	1.15	10.0	3.3	3.6	99.9
971	1	52	8200	5888	92	2392	368	460	9999	258	45.1	5.23	86.2	15.3	1.40	11.9	2.6	4.8	12.1
980	2	42	10200	9999	9999	9999	9999	9999	9999	230	43.7	5.07	86.1	14.7	99.99	9.8	3.9	3.9	99.9
998	2	47	7400	2294	0	2368	148	2516	0	261	38.6	4.71	81.9	13.6	1.53	10.6	4.0	4.5	99.9
1001	2	61	6500	3315	0	2535	260	325	65	145	40.8	5.12	79.7	13.5	.71	9.8	4.3	4.1	99.9
1035	2	44	8900	6141	89	2047	89	534	9999	248	43.1	5.07	85.0	15.4	1.20	9.4	4.1	4.2	13.4
1036	1	43	5400	2538	0	2214	486	108	54	161	50.3	5.85	58.9	16.9	1.28	10.1	3.9	4.5	99.9
1043	2	60	5300	3180	0	1802	265	53	0	226	41.6	4.95	84.1	14.3	1.54	10.6	4.1	4.9	99.9
1519	1	52	5500	3630	0	1540	165	110	55	233	46.3	5.15	89.9	15.8	.50	10.3	3.3	4.6	99.9
1530	2	49	7800	4602	78	2418	468	156	78	354	39.4	4.60	85.6	13.3	6.00	9.3	4.1	4.1	99.9
1541	2	67	6000	2820	9999	2280	720	180	60	201	38.5	4.42	87.0	13.6	3.10	10.1	4.2	3.9	11.4
1542	2	42	6600	3762	9999	1848	330	660	9999	221	42.3	5.34	79.3	14.9	1.10	9.4	3.2	4.1	99.9
1552	1	65	4800	2805	9999	1760	550	385	9999	215	40.7	4.76	85.4	13.7	1.03	9.7	3.3	4.5	99.9
1556	2	50	4700	1786	0	2773	141	0	0	220	35.8	3.87	91.9	13.1	4.34	10.2	4.6	4.8	99.9
1557	1	47	6300	2646	0	2772	315	504	63	180	44.9	4.94	90.8	15.5	.84	10.2	3.3	4.7	99.9
1558	2	45	5900	2596	0	2596	472	118	118	281	39.2	4.45	88.2	13.9	1.28	9.5	3.1	4.0	99.9
1559	2	42	8700	4872	0	3219	174	261	174	241	42.8	5.41	79.1	14.0	2.42	10.1	3.7	4.5	99.9
1563	1	59	5400	2700	0	2268	270	162	0	234	43.3	4.80	90.2	14.7	1.42	10.6	3.2	4.6	99.9
1564	2	46	7500	2400	0	4575	225	225	75	208	39.8	4.62	86.1	13.6	50.03	10.1	3.9	4.0	99.9
1572	1	47	4400	2200	9999	1804	264	132	9999	171	45.4	5.37	84.6	15.5	.80	9.9	4.6	4.6	12.7
1573	1	45	5300	2544	0	2173	265	318	0	115	47.4	5.01	94.7	16.5	.04	9.7	2.6	3.8	5.8
1577	2	44	6200	4154	62	1488	248	248	9999	247	35.6	3.95	90.1	12.9	.50	9.3	2.9	3.9	99.9
2102	1	51	8200	4592	0	2788	738	82	0	298	45.6	4.79	95.1	16.9	.49	8.6	3.7	3.8	6.9
2106	1	45	10200	4888	9999	3666	470	376	9999	248	45.6	5.43	84.0	17.0	.49	9.5	4.1	4.2	8.5
2107	2	66	10200	6164	9999	5226	804	804	402	302	35.6	4.11	86.7	12.4	1.70	9.9	3.3	3.5	7.2
2108	1	51	7500	2550	0	4200	0	675	75	189	41.7	4.70	88.8	15.6	1.98	10.0	3.6	4.8	8.9
2113	2	46	7500	3825	9999	2850	600	225	9999	302	37.8	5.13	73.6	12.6	1.60	8.8	3.5	3.9	6.5

COMPUTER LISTING OF 1995 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH	CAL	PHOS	ALB	PRL
2114	1	81	7100	4402	71	1349	710	497	71	198	34.2	3.96	86.3	11.7	1.30	8.6	2.6	3.2	7.4
2115	1	41	11000	6930	0	2860	1100	110	0	269	52.9	6.11	86.5	18.4	2.75	10.2	3.8	4.6	4.1
2119	2	59	5700	2793	114	1995	456	171	171	234	39.6	4.69	84.5	13.5	1.31	9.6	4.4	3.9	4.6
2126	2	49	7700	4543	0	2541	385	231	0	318	39.3	4.63	84.8	13.5	2.14	9.2	3.4	3.8	47.4
2130	2	43	6900	4623	0	1863	69	276	69	180	35.5	4.12	86.1	12.0	1.96	8.6	3.0	3.5	9.1
2132	2	42	4600	2116	0	2208	92	138	46	214	42.6	5.15	82.7	14.8	.24	9.4	2.9	3.8	6.4
2134	2	42	4400	2244	9999	1496	616	44	9999	234	39.5	4.68	84.5	14.2	2.00	9.1	2.7	4.1	7.7
2136	1	45	5900	2928	9999	2074	366	732	9999	235	43.9	4.84	90.7	15.0	1.77	9.4	3.5	4.2	8.2
2138	2	45	5500	3245	0	1705	275	275	0	331	38.8	4.46	87.0	13.1	1.09	9.3	3.3	3.9	8.3
2139	2	76	5200	2756	0	1560	260	520	104	250	35.3	3.79	93.1	11.8	3.50	9.1	3.4	3.6	12.9
2142	1	46	7500	5475	75	1725	225	0	0	196	46.5	5.28	88.1	16.1	1.59	9.5	3.7	3.9	8.1
2143	1	43	5200	3588	0	1040	312	260	0	235	45.0	5.60	80.4	14.8	.85	9.2	3.5	4.3	1.4
2144	1	48	7500	4050	0	2325	750	375	0	187	52.5	5.62	93.5	18.4	3.16	9.5	3.7	4.5	6.0
2145	1	73	5900	2491	9999	2491	318	53	159	238	41.5	4.45	93.3	14.0	1.80	9.1	3.4	3.8	6.4
2148	1	85	4500	1890	0	1935	495	180	0	112	33.6	3.71	90.7	12.0	2.93	8.5	4.1	3.6	6.2
2149	2	49	6800	3672	0	2380	340	408	0	273	34.5	3.96	87.2	11.8	7.68	9.4	4.2	3.5	8.1
2150	1	53	6100	3050	0	1891	732	427	0	202	45.9	5.62	81.7	15.1	.99	9.4	4.2	3.7	3.9
2152	1	58	6900	5313	138	1242	69	0	138	218	42.1	4.73	89.1	33.0	4.24	9.5	4.7	4.3	9.9
2153	1	42	5200	3848	9999	1144	156	9999	52	253	41.2	5.36	76.9	14.3	2.60	9.9	3.7	4.0	7.3
2155	1	41	6600	2904	0	2970	528	132	66	256	47.5	5.67	83.8	16.7	.89	9.7	3.3	4.5	4.5
2156	1	50	3200	1888	0	992	288	32	0	71	42.5	4.50	94.4	15.0	.92	9.1	4.0	3.5	8.9
2158	2	70	7300	3650	0	2409	365	803	73	302	31.6	3.68	86.0	10.8	1.74	8.7	3.3	3.1	6.6
2160	2	45	5900	3245	0	2360	295	0	0	285	43.6	4.97	87.7	14.8	2.45	9.2	3.9	3.9	4.7
2167	1	55	7200	3456	0	2808	504	288	144	204	43.4	4.90	88.6	15.4	.50	9.5	3.7	4.1	7.5
2171	2	43	8900	4371	186	3627	465	558	93	248	38.3	4.49	85.4	13.2	1.20	9.0	3.6	3.5	10.6
2172	2	53	6500	3575	0	2145	585	195	0	251	37.7	4.28	88.2	13.2	2.53	10.2	4.5	4.0	5.2
2174	1	41	7700	4004	0	3080	308	308	0	264	48.5	5.70	85.1	17.1	1.99	9.2	4.1	3.8	3.2
2176	1	51	5100	3213	0	1479	153	714	51	216	47.1	5.13	91.9	16.0	1.12	9.8	3.9	4.1	8.9
2179	1	44	7500	3450	0	3150	675	225	0	225	49.1	6.00	81.9	16.9	.74	9.1	3.1	4.2	10.1
2188	1	44	5000	2400	0	1700	500	300	100	175	46.7	5.34	87.5	15.5	.76	9.3	3.4	3.7	4.5
2195	2	65	9000	4770	0	2880	180	1080	90	323	34.1	4.34	78.5	11.7	1.46	8.7	4.1	3.8	5.6
2196	2	79	4500	3105	45	990	90	270	0	246	38.0	4.31	88.2	13.0	7.18	9.7	3.5	4.0	7.3
2197	2	42	6500	2925	65	3185	195	65	65	227	36.8	4.36	84.4	13.0	3.85	9.2	3.5	3.6	9.9
2206	1	73	7000	4620	0	2030	0	350	0	190	40.8	4.73	86.3	14.4	.53	9.1	4.2	3.9	9.9
2207	1	46	5300	2279	9999	2385	265	371	9999	256	41.7	5.30	78.6	14.2	1.90	9.4	3.9	4.3	10.9
2209	2	46	6700	3752	0	1943	0	1005	0	527	28.0	3.43	81.6	9.5	1.69	9.4	3.9	3.5	10.8
2210	2	41	8100	4617	0	2268	324	567	324	277	40.6	4.52	89.9	13.9	.96	9.2	3.3	3.6	8.8
2213	2	42	8500	9999	9999	9999	9999	9999	9999	279	38.8	4.67	83.1	13.0	.26	9.5	3.2	4.0	9.9
2215	2	74	7100	3763	0	2627	497	213	0	260	39.6	4.69	84.5	13.5	2.95	9.0	3.4	3.7	5.4
2217	2	62	14500	9715	145	2175	290	2175	9999	240	35.8	3.99	89.6	12.9	1.30	9.4	4.7	3.9	10.0
2220	2	66	6600	3828	0	2178	264	330	0	249	40.8	4.45	91.7	14.7	4.99	9.2	4.3	3.7	4.6
2224	2	72	8700	5829	0	2436	348	87	0	367	34.9	3.80	91.9	12.1	1.70	9.4	3.4	3.8	8.0
2225	2	47	8600	5100	9999	1725	300	225	150	216	31.0	3.66	84.6	10.3	2.23	8.9	4.4	3.2	16.8
2227	2	45	8400	3763	9999	2414	142	71	9999	312	35.9	4.72	76.0	11.7	2.89	9.2	3.8	3.9	7.8
2228	2	49	11200	7168	0	3584	224	224	0	358	39.1	4.62	84.6	13.4	1.40	9.2	3.3	3.6	7.1
2229	2	59	8200	3795	69	2415	483	138	9999	226	42.3	4.77	88.7	14.0	9.40	9.0	4.2	3.5	21.3
2230	2	53	7700	5082	0	2079	154	231	154	293	42.5	5.26	80.8	13.8	1.32	9.4	4.1	4.0	5.3
2231	2	42	6400	75	9999	25	9999	9999	9999	385	38.1	5.05	75.4	13.1	.91	9.4	3.8	3.5	5.8
2232	1	43	7300	3285	219	3504	146	146	0	226	48.2	5.12	94.2	17.4	3.87	10.1	6.0	4.2	5.3
2234	1	53	5700	3021	0	1995	342	285	57	238	43.3	4.91	88.2	15.0	2.21	9.4	3.7	4.1	5.7
2235	1	48	10400	6656	0	2704	312	728	0	223	44.6	5.06	88.2	15.3	.80	9.2	2.7	3.9	6.9
2236	1	52	7300	9999	9999	9999	9999	9999	9999	273	42.5	5.19	81.8	14.9	8.08	9.6	4.6	4.1	6.5
2239	2	44	7600	3572	0	2660	152	1216	0	308	36.8	4.18	88.0	12.9	2.38	9.5	3.6	3.9	5.6
2242	1	41	7100	4686	9999	1633	284	497	9999	251	42.7	4.82	88.5	15.0	1.30	9.4	3.4	4.5	8.2
2245	1	41	6400	9999	9999	9999	9999	9999	9999	204	46.2	4.97	93.0	16.9	1.20	8.7	3.3	4.4	8.1

COMPUTER LISTING OF 1995 RAW DATA

PID	SEX	AGE	WBC	PMN	BAND	LYMPH	MONO	EOS	BASO	PLT	HCT	RBC	MCV	HGB	TSH	CAL	PHOS	ALB	PRL
2247	2	49	6200	2600	9999	2860	325	715	9999	205	37.9	4.58	82.7	13.0	.92	9.9	3.5	3.8	5.1
2248	2	56	7700	4389	77	2079	693	308	154	327	40.0	4.82	82.9	14.0	23.15	10.2	3.7	4.1	4.0
2250	1	51	9999	9999	9999	9999	9999	9999	9999	999	99.9	9.99	999.9	99.9	1.10	9.3	3.1	4.1	10.5
2251	2	46	11800	9676	0	1770	354	0	0	343	41.3	4.69	88.1	14.3	9.11	9.6	3.4	4.1	19.5
2254	2	46	4900	3038	9999	1568	49	245	9999	306	36.6	4.56	80.3	13.0	4.20	9.4	3.4	4.0	13.4
2255	2	41	8600	5676	86	2064	172	430	172	185	38.8	4.55	85.2	14.3	.74	9.4	2.8	4.0	12.1
2256	2	46	5900	2891	177	2360	118	177	177	291	28.1	3.39	82.8	9.7	.88	9.2	4.4	3.4	3.7
2257	1	48	9999	9999	9999	9999	9999	9999	9999	999	99.9	9.99	999.9	99.9	1.00	9.1	3.1	4.2	13.1
2260	2	41	9100	5460	0	3094	455	0	91	346	42.2	4.94	85.4	14.9	.05	10.2	3.6	4.3	39.2
2261	1	66	6500	5005	130	1105	130	130	0	176	48.0	5.22	91.9	16.6	3.40	9.1	3.2	4.4	7.4
2268	1	41	7200	4104	9999	2664	360	72	9999	190	51.0	6.16	82.8	17.4	1.50	10.2	4.3	4.6	3.4
2269	1	40	6200	7622	103	1957	412	206	9999	244	44.8	4.91	91.2	15.8	1.63	9.6	2.7	4.2	4.2
2271	1	40	5100	2754	0	1734	255	255	51	283	43.1	5.16	83.5	15.7	1.94	9.8	3.8	3.9	8.4
2273	1	41	8800	4488	88	3168	528	440	88	279	48.5	5.79	83.8	16.8	1.84	10.8	4.0	4.6	13.4
2274	1	40	7100	2698	0	3337	639	142	213	278	44.6	5.29	84.3	15.2	1.05	9.7	3.9	4.5	2.1
2277	2	41	14300	10582	143	2574	715	143	143	253	38.8	5.42	71.6	12.6	3.54	9.4	3.1	3.6	6.1
2548	1	40	8800	5016	0	2904	616	0	264	282	46.7	5.07	92.2	16.0	1.88	9.3	4.8	4.4	19.1

COMPUTER LISTING OF 1996 RAW DATA

PID	SEX	AGE	WBC	SEG%	BAN%	LYM%	MON%	EOS%	BAS%	PLAT	HCT	RBC	MCV	HGB	TSH	VTB12	HBSA	PSA	HA1C
2	1	43	6.4	75.0	4.0	12.0	6.0	3.0	0.0	172.	44.8	4.51	99.0	15.1	2.04	539.	0.	1.9	99.9
3	1	43	7.6	53.0	0.0	32.0	5.0	9.0	1.0	242.	35.9	3.82	94.0	11.8	12.60	397.	9.	.7	99.9
5	1	44	8.1	58.0	5.0	28.0	5.0	4.0	0.0	222.	41.0	4.10	100.0	13.7	1.16	449.	0.	.3	99.9
6	1	43	7.3	50.0	6.0	41.0	2.0	1.0	0.0	189.	42.0	4.46	94.0	14.5	99.99	279.	9.	1.5	99.9
7	1	76	6.8	53.0	6.0	28.0	10.0	2.0	1.0	250.	38.5	4.15	92.8	13.1	4.36	302.	0.	8.7	99.9
8	2	44	6.4	55.0	99.9	30.0	8.0	5.0	1.0	261.	39.2	3.85	102.0	13.3	2.01	542.	0.	99.9	99.9
9	1	62	8.7	53.0	2.0	38.0	3.0	4.0	0.0	154.	43.2	4.73	91.0	14.4	99.99	629.	0.	.6	7.0
14	2	66	6.9	50.0	2.0	36.0	9.0	2.0	1.0	192.	37.7	3.68	102.5	13.0	1.00	271.	9.	99.9	99.9
15	2	49	11.4	51.0	12.0	31.0	3.0	3.0	0.0	321.	39.0	4.39	94.1	13.8	94.47	428.	0.	99.9	12.2
17	2	45	6.8	57.0	1.0	37.0	3.0	2.0	0.0	191.	38.3	4.33	88.4	12.8	2.12	491.	0.	99.9	7.3
18	2	64	6.7	45.0	2.0	24.0	14.0	12.0	3.0	237.	41.3	4.50	91.8	14.2	.02	563.	0.	99.9	99.9
19	1	47	5.6	56.0	1.0	34.0	7.0	2.0	0.0	237.	44.1	5.38	75.6	14.3	.55	615.	9.	9.7	99.9
20	1	49	6.3	34.0	10.0	42.0	7.0	7.0	0.0	203.	43.1	4.99	87.0	14.6	2.42	506.	0.	.5	5.2
21	2	45	4.6	74.0	0.0	20.0	4.0	1.0	1.0	236.	37.4	4.55	82.2	12.2	.02	600.	0.	99.9	99.9
22	2	57	8.6	67.0	1.0	26.0	2.0	4.0	0.0	247.	39.6	4.14	95.6	13.3	1.70	456.	0.	99.9	99.9
23	1	46	99.9	99.9	99.9	99.9	99.9	99.9	99.9	999.	99.9	9.99	999.9	99.9	12.88	610.	0.	1.1	99.9
24	2	56	7.0	37.0	4.0	47.0	3.0	9.0	0.0	220.	45.0	4.92	91.4	15.7	.15	503.	0.	99.9	7.3
33	2	43	8.8	44.0	2.0	44.0	2.0	7.0	1.0	310.	40.4	4.46	90.6	14.2	37.79	349.	0.	99.9	13.5
35	1	55	4.3	49.0	0.0	44.0	5.0	2.0	0.0	237.	47.7	5.22	91.4	16.2	2.24	385.	0.	1.9	99.9
36	1	49	6.8	54.0	99.9	35.0	3.0	3.0	0.0	273.	36.8	3.95	93.1	12.2	.59	558.	9.	.7	99.9
37	1	62	18.2	37.0	1.0	9.0	8.0	4.0	2.0	198.	37.9	4.29	88.3	12.6	9.97	351.	9.	1.8	99.9
39	2	56	7.6	50.0	2.0	39.0	6.0	3.0	0.0	343.	37.6	4.22	89.1	12.4	.97	459.	9.	99.9	99.9
40	1	71	6.9	69.0	8.0	15.0	7.0	1.0	0.0	295.	38.2	4.20	90.8	12.3	.96	340.	0.	7.9	99.9
42	2	45	7.2	99.9	99.9	99.9	99.9	99.9	99.9	162.	39.5	3.71	106.4	13.5	16.94	396.	0.	99.9	99.9
44	1	46	8.6	68.0	1.0	28.0	2.0	1.0	0.0	224.	47.4	5.52	85.9	16.0	3.04	275.	0.	1.3	99.9
45	2	74	5.8	40.0	0.0	46.0	4.0	10.0	0.0	288.	34.5	3.62	95.4	11.6	2.87	388.	9.	99.9	99.9
47	1	51	7.9	67.0	2.0	19.0	6.0	6.0	0.0	165.	46.0	4.61	100.0	15.6	.49	269.	0.	.8	7.7
48	2	48	5.6	69.0	2.0	26.0	2.0	1.0	0.0	193.	40.3	4.21	95.8	13.5	.02	413.	0.	99.9	99.9
49	2	58	6.6	39.0	11.0	47.0	2.0	1.0	0.0	205.	41.4	4.63	89.4	14.1	.36	585.	0.	99.9	8.3
53	2	49	6.1	57.0	3.0	31.0	6.0	1.0	2.0	240.	41.6	4.65	89.4	13.8	2.04	572.	9.	99.9	8.4
61	2	50	9.0	57.0	0.0	38.0	3.0	2.0	0.0	211.	33.0	3.89	87.0	11.3	.31	717.	0.	99.9	6.4
63	2	77	6.3	35.0	17.0	33.0	5.0	10.0	0.0	196.	41.4	4.56	90.8	13.6	2.88	477.	9.	99.9	99.9
64	2	72	5.7	52.0	1.0	34.0	7.0	6.0	0.0	189.	37.9	4.06	93.0	13.1	62.63	743.	0.	99.9	99.9
65	2	43	5.9	45.0	0.0	32.0	2.0	19.0	2.0	220.	33.3	3.70	90.0	11.0	.13	618.	0.	99.9	99.9
66	2	71	7.8	99.9	99.9	99.9	99.9	99.9	99.9	208.	42.1	4.79	88.0	14.1	3.30	510.	9.	99.9	99.9
67	2	55	5.9	53.0	4.0	33.0	6.0	3.0	1.0	189.	40.6	4.22	96.0	13.9	99.99	999.	9.	99.9	99.9
70	2	58	5.6	58.0	3.0	31.0	4.0	2.0	2.0	199.	37.6	4.34	86.6	12.7	11.01	999.	0.	99.9	99.9
71	2	68	6.0	55.0	6.0	35.0	2.0	2.0	0.0	185.	37.0	3.85	96.3	12.4	4.74	439.	9.	99.9	99.9
72	2	49	6.2	57.0	0.0	35.0	4.0	35.0	2.0	381.	34.6	3.65	95.0	XXXX	11.11	347.	1.	99.9	99.9
73	1	60	99.9	99.9	99.9	99.9	99.9	99.9	99.9	999.	99.9	9.99	999.9	99.9	.23	237.	9.	99.9	99.9
74	2	58	11.9	38.0	0.0	52.0	6.0	4.0	0.0	154.	44.0	4.91	90.0	15.0	.30	999.	0.	99.9	99.9
75	2	54	9.0	44.0	6.0	35.0	6.0	7.0	2.0	233.	43.4	4.84	89.7	14.4	7.64	456.	0.	99.9	11.9
76	1	52	11.0	55.0	4.0	37.0	2.0	2.0	0.0	169.	46.1	4.86	94.9	15.6	99.99	999.	9.	99.9	99.9
81	2	50	5.8	48.0	0.0	37.0	10.0	5.0	0.0	260.	38.1	4.33	87.9	12.9	99.99	999.	9.	99.9	99.9
83	1	42	6.1	36.0	1.0	50.0	6.0	7.0	0.0	127.	46.2	4.51	102.4	16.2	16.21	1045.	0.	2.4	99.9
84	1	42	4.2	32.0	0.0	62.0	2.0	4.0	0.0	249.	42.3	4.68	91.0	14.2	.02	450.	0.	.8	99.9
85	1	42	7.2	45.0	2.0	49.0	0.0	4.0	0.0	190.	46.3	4.83	95.9	15.8	3.00	434.	0.	.7	99.9
86	2	42	10.4	65.0	3.0	21.0	7.0	4.0	0.0	226.	39.5	4.61	39.5	13.4	3.19	587.	0.	99.9	99.9
805	2	42	5.7	34.0	2.0	50.0	4.0	10.0	0.0	276.	38.0	4.61	83.0	12.1	1.55	608.	1.	99.9	99.9
811	2	42	8.9	40.0	5.0	47.0	4.0	4.0	0.0	226.	37.0	3.71	99.5	12.6	2.04	456.	9.	99.9	99.9
813	1	42	8.7	53.0	0.0	35.0	8.0	4.0	0.0	198.	47.9	4.81	100.0	16.4	1.15	535.	1.	.7	99.9
815	1	46	7.2	59.0	3.0	25.0	10.0	25.0	0.0	190.	43.1	4.52	95.0	14.7	.95	999.	1.	.7	99.9
816	2	46	7.0	58.0	4.0	25.0	10.0	3.0	0.0	282.	36.9	4.23	87.3	12.4	1.14	231.	0.	99.9	99.9
818	1	45	6.0	49.0	1.0	48.0	1.0	1.0	0.0	246.	45.7	5.08	90.0	15.0	.91	999.	0.	1.7	99.9
822	1	50	6.5	66.0	0.0	26.0	5.0	2.0	1.0	236.	33.2	4.25	78.1	10.4	.60	482.	9.	1.4	99.9

COMPUTER LISTING OF 1996 RAW DATA

PID	SEX	AGE	WBC	SEG%	BAN%	LYM%	MON%	EOS%	BAS%	PLAT	HCT	RBC	MCV	HGB	TSH	VTB12	HBSA	PSA	HA1C
823	1	53	5.6	41.0	1.0	46.0	10.0	2.0	0.0	183.	42.9	4.56	94.0	14.6	.97	364.	0.	1.3	99.9
825	2	54	6.8	54.0	2.0	32.0	8.0	4.0	0.0	249.	40.6	4.67	86.9	13.7	2.96	428.	0.	99.9	99.9
827	1	56	7.9	37.0	4.0	47.0	5.0	6.0	1.0	220.	38.5	4.15	93.0	12.7	.11	504.	0.	.8	99.9
830	1	58	5.9	69.0	1.0	13.0	4.0	13.0	0.0	175.	40.9	4.26	96.0	13.8	.81	373.	0.	.4	99.9
831	1	55	6.1	35.0	3.0	53.0	5.0	4.0	0.0	290.	45.0	4.32	93.4	15.4	1.96	645.	1.	.5	6.7
832	2	58	5.8	58.0	3.0	35.0	2.0	1.0	1.0	190.	38.6	4.69	82.3	12.6	3.17	687.	9.	99.9	10.8
833	1	63	3.4	49.0	0.0	47.0	3.0	0.0	1.0	203.	40.9	4.77	85.6	13.5	99.99	999.	9.	99.9	99.9
834	1	62	9.1	58.0	2.0	25.0	15.0	0.0	0.0	258.	45.0	5.01	90.0	15.5	2.47	641.	0.	1.1	9.3
838	1	63	7.0	42.0	8.0	47.0	3.0	0.0	0.0	198.	45.3	4.50	101.0	15.0	.88	243.	1.	.5	99.9
839	2	68	6.9	99.9	99.9	99.9	99.9	99.9	99.9	214.	38.6	4.21	91.8	13.5	.30	889.	9.	99.9	10.9
840	1	66	10.3	50.0	9.0	29.0	9.0	12.0	0.0	238.	45.3	5.67	80.0	14.9	1.81	479.	0.	.7	5.4
841	2	63	7.3	99.9	99.9	99.9	99.9	99.9	99.9	188.	43.0	5.08	84.6	14.9	.541	121.	1.	99.9	7.2
843	2	67	8.9	49.0	11.0	25.0	5.0	9.0	1.0	211.	35.4	3.66	96.7	12.2	.27	515.	9.	99.9	99.9
845	1	66	5.8	49.0	6.0	40.0	5.0	0.0	0.0	197.	41.7	4.57	91.1	13.5	3.07	329.	1.	7.0	99.9
863	1	46	10.4	55.0	0.0	37.0	7.0	1.0	0.0	215.	48.1	5.09	95.0	16.6	1.18	505.	0.	.9	99.9
864	1	70	7.7	62.0	1.0	36.0	1.0	0.0	0.0	177.	42.4	4.72	89.9	14.4	1.80	330.	0.	4.7	99.9
865	2	63	6.8	37.0	0.0	55.0	3.0	5.0	0.0	245.	38.5	4.03	95.0	13.0	3.04	476.	0.	99.9	99.9
868	1	73	7.5	68.0	2.0	16.0	3.0	10.0	1.0	173.	40.3	4.46	91.0	13.3	5.25	337.	0.	4.0	7.3
879	2	42	7.9	67.0	2.0	31.0	0.0	0.0	0.0	285.	39.4	4.36	90.4	13.1	3.78	366.	9.	99.9	99.9
881	1	63	8.3	54.0	7.0	32.0	5.0	2.0	0.0	181.	47.5	5.37	88.5	16.0	.92	735.	1.	1.4	7.3
882	1	63	7.6	63.0	6.0	26.0	3.0	2.0	0.0	194.	43.9	5.32	82.0	14.9	.63	800.	0.	3.8	11.1
891	2	48	4.3	24.0	9.0	63.0	1.0	3.0	0.0	301.	40.0	4.05	99.0	13.4	1.28	328.	1.	99.9	99.9
896	2	56	9.1	64.0	0.0	29.0	4.0	2.0	0.0	206.	41.3	4.70	88.0	13.9	1.51	562.	0.	99.9	9.8
909	2	46	9.2	54.0	0.0	38.0	2.0	6.0	0.0	266.	39.6	4.27	93.0	13.2	1.69	999.	0.	99.9	99.9
911	2	43	5.4	54.0	4.0	28.0	7.0	7.0	0.0	259.	38.6	4.36	88.0	13.1	.66	485.	0.	99.9	99.9
914	2	61	9.2	54.0	0.0	27.0	7.0	10.0	2.0	212.	34.8	3.90	89.0	11.4	1.77	566.	0.	99.9	4.1
920	1	64	7.2	34.0	21.0	40.0	3.0	2.0	0.0	159.	40.6	4.25	95.5	14.1	.85	466.	0.	1.6	10.3
922	2	71	5.2	62.0	0.0	29.0	5.0	3.0	1.0	223.	42.1	4.52	93.2	14.2	1.58	276.	9.	99.9	99.9
925	2	45	8.8	61.0	0.0	30.0	6.0	3.0	0.0	381.	35.9	4.80	75.0	11.3	99.99	999.	0.	99.9	99.9
926	2	45	5.2	57.0	0.0	36.0	5.0	2.0	0.0	165.	42.5	4.81	88.4	14.0	2.80	534.	9.	99.9	99.9
931	1	42	7.0	71.0	0.0	25.0	3.0	1.0	0.0	250.	44.4	4.68	94.9	15.2	.91	295.	9.	.4	99.9
932	2	71	7.1	36.0	1.0	46.0	3.0	14.0	0.0	204.	35.4	3.87	91.5	12.1	2.40	445.	0.	99.9	6.2
938	2	63	5.6	52.0	0.0	46.0	2.0	0.0	0.0	201.	35.9	4.10	88.0	12.1	.03	724.	0.	99.9	99.9
939	1	50	8.5	57.0	5.0	36.0	1.0	1.0	0.0	219.	48.6	5.72	85.0	18.3	2.34	1070.	0.	.5	15.5
942	2	81	5.0	30.0	10.0	50.0	5.0	5.0	0.0	207.	33.2	3.67	90.5	11.3	99.99	999.	9.	99.9	7.5
943	1	65	9.7	75.0	3.0	16.0	6.0	0.0	0.0	448.	31.0	3.32	93.0	10.1	.50	413.	1.	.4	99.9
955	2	44	9.2	49.0	5.0	38.0	4.0	4.0	0.0	228.	37.8	3.95	96.0	12.6	2.54	406.	0.	99.9	99.9
958	1	64	9.5	50.0	4.0	40.0	3.0	3.0	0.0	471.	28.9	3.31	87.0	9.1	1.45	2023.	0.	1.0	99.9
960	2	44	9.5	59.0	7.0	22.0	7.0	5.0	0.0	221.	38.1	4.42	86.0	13.2	2.68	654.	0.	99.9	99.9
963	1	68	5.7	52.0	0.0	43.0	1.0	3.0	1.0	193.	40.9	4.54	90.1	13.4	4.09	388.	9.	.9	99.9
965	2	52	7.3	59.0	3.0	34.0	1.0	2.0	1.0	280.	39.6	4.64	85.0	13.2	1.13	812.	0.	99.9	12.8
966	1	64	5.1	61.0	0.0	35.0	3.0	0.0	1.0	175.	XXXX	4.36	94.0	13.5	.03	342.	0.	5.3	99.9
971	1	53	7.4	56.0	6.0	37.0	1.0	0.0	0.0	247.	46.2	5.24	88.1	15.6	1.10	999.	0.	2.1	99.9
981	1	42	5.9	64.0	0.0	27.0	1.0	7.0	1.0	209.	45.2	4.77	95.0	15.7	1.04	374.	0.	1.5	4.0
998	2	49	7.4	46.0	2.0	46.0	6.0	3.0	0.0	255.	39.2	4.65	84.0	13.5	2.90	876.	0.	99.9	10.8
1001	2	62	7.6	58.0	2.0	34.0	4.0	2.0	0.0	197.	42.0	5.20	80.8	13.7	.99	768.	9.	99.9	9.8
1035	2	45	5.8	57.0	0.0	37.0	2.0	3.0	1.0	253.	42.8	4.81	89.0	14.7	1.04	877.	0.	99.9	8.1
1036	1	44	8.8	62.0	0.0	31.0	6.0	1.0	0.0	202.	48.8	5.58	88.0	16.4	1.45	1155.	0.	2.7	4.5
1043	2	61	6.1	64.0	2.0	31.0	3.0	0.0	0.0	210.	35.6	4.28	83.1	11.6	99:99	461.	0.	99.9	4.0
1505	2	57	4.6	56.0	5.0	26.0	9.0	4.0	0.0	169.	36.9	4.07	91.0	12.7	2.39	780.	0.	99.9	8.1
1509	9	999	99.9	99.9	99.9	99.9	99.9	99.9	99.9	999.	99.9	9.99	999.9	99.9	99.99	999.	9.	99.9	99.9
1519	1	53	7.3	62.0	5.0	27.0	3.0	3.0	0.0	203.	46.9	5.15	91.0	16.0	99.99	999.	0.	99.9	6.7
1524	1	53	11.0	48.0	3.0	42.0	4.0	2.0	1.0	179.	47.1	5.08	92.8	16.2	4.25	563.	0.	.6	9.8
1525	2	53	7.7	44.0	0.0	42.0	7.0	7.0	0.0	269.	39.0	4.22	92.0	13.2	2.66	469.	0.	99.9	6.2
1541	2	68	7.7	49.0	3.0	32.0	13.0	3.0	0.0	190.	36.9	4.12	90.0	12.2	4.13	320.	0.	99.9	99.9

COMPUTER LISTING OF 1996 RAW DATA

PID	SEX	AGE	WBC	SEG%	BAN%	LYM%	MON%	EOS%	BAS%	PLAT	HCT	RBC	MCV	HGB	TSH	VTB12	HBSA	PSA	HA1C
2215	2	75	10.4	59.0	2.0	28.0	7.0	4.0	0.0	387.	39.5	4.49	88.0	13.1	.73	759.	1.	99.9	7.7
2217	2	63	9.7	66.0	0.0	26.0	2.0	6.0	0.0	228.	36.4	3.87	94.0	12.5	.21	761.	0.	99.9	99.9
2220	2	67	8.6	62.0	0.0	30.0	7.0	1.0	0.0	265.	45.0	4.76	95.0	15.6	4.56	716.	0.	99.9	6.9
2224	2	73	7.6	48.0	10.0	28.0	4.0	10.0	0.0	291.	34.6	3.63	95.0	11.7	1.49	557.	0.	99.9	99.9
2225	2	48	10.4	55.0	19.0	18.0	4.0	4.0	0.0	258.	32.0	3.81	84.0	10.6	1.60	398.	0.	99.9	99.9
2226	2	44	7.2	62.0	6.0	21.0	5.0	4.0	2.0	279.	33.3	4.75	70.0	10.4	4.82	659.	1.	99.9	99.9
2227	2	46	9.3	61.0	0.0	32.0	2.0	3.0	2.0	339.	34.2	4.50	77.0	11.2	1.54	654.	0.	99.9	99.9
2228	2	50	12.2	61.0	0.0	34.0	3.0	2.0	0.0	289.	41.3	4.75	86.9	14.0	99.99	999.	0.	99.9	5.8
2229	2	60	7.3	99.9	99.9	99.9	99.9	99.9	99.9	223.	41.7	4.63	90.0	13.9	1.53	999.	0.	99.9	99.9
2230	2	55	10.1	70.0	6.0	19.0	4.0	1.0	0.0	259.	41.9	5.00	83.7	13.9	99.99	999.	0.	99.9	12.1
2231	2	43	6.0	61.0	8.0	27.0	1.0	0.0	3.0	478.	33.6	5.00	63.0	10.0	1.51	798.	0.	99.9	99.9
2232	1	44	9.4	37.0	0.0	45.0	8.0	9.0	1.0	208.	53.3	5.52	96.4	18.8	99.99	999.	0.	99.9	6.0
2234	1	54	8.0	61.0	3.0	28.0	5.0	1.0	2.0	298.	45.7	5.09	89.8	15.7	8.83	999.	0.	99.9	99.9
2235	1	49	7.5	57.0	0.0	31.0	3.0	7.0	2.0	229.	42.1	4.52	93.2	14.3	99.99	999.	9.	99.9	99.9
2236	1	53	6.5	37.0	4.0	50.0	5.0	4.0	0.0	258.	44.1	5:10	86.5	15.1	5.78	999.	0.	99.9	99.9
2237	1	49	7.8	54.0	2.0	41.0	3.0	0.0	0.0	352.	42.1	4.64	91.0	14.6	2.15	391.	0.	2.0	5.4
2239	2	45	10.6	65.0	0.0	29.0	3.0	1.0	2.0	324.	38.1	4.20	90.7	12.8	99.99	999.	9.	99.9	99.9
2242	1	42	7.0	59.0	2.0	28.0	5.0	6.0	0.0	216.	44.6	4.72	95.0	15.2	2.13	676.	0.	.4	99.9
2245	1	42	6.8	47.0	6.0	30.0	16.0	0.0	1.0	239.	45.1	4.60	98.0	15.5	1.75	552.	0.	.9	99.9
2247	2	50	7.4	52.0	0.0	39.0	6.0	3.0	0.0	200.	42.5	4.86	88.0	14.6	.691	083.	1.	99.9	11.4
2248	2	57	10.9	63.0	5.0	18.0	5.0	8.0	1.0	367.	40.7	5.03	81.0	13.8	99.99	999.	9.	99.9	17.6
2251	2	47	10.8	67.0	5.0	25.0	1.0	2.0	0.0	350.	43.1	4.71	91.6	14.7	39.32	999.	0.	99.9	7.5
2254	2	47	6.4	67.0	0.0	32.0	1.0	0.0	0.0	308.	38.8	4.73	82.0	13.2	5.19	487.	0.	99.9	99.9
2255	2	42	9.5	53.0	4.0	35.0	4.0	3.0	1.0	176.	39.9	4.37	91.0	13.5	.40	999.	1.	99.9	9.7
2256	2	47	8.8	56.0	8.0	24.0	3.0	8.0	1.0	345.	28.0	3.13	89.0	9.5	1.61	904.	0.	99.9	8.4
2257	1	49	7.0	75.0	0.0	21.0	2.0	2.0	0.0	213.	42.8	5.04	85.0	14.3	1.33	415.	1.	1.1	99.9
2260	2	42	8.5	61.0	0.0	31.0	8.0	0.0	0.0	322.	42.7	4.78	89.3	14.6	99.99	999.	0.	99.9	99.9
2261	1	67	8.2	43.0	1.0	28.0	4.0	23.0	1.0	187.	52.6	5.52	95.2	18.2	4.89	497.	0.	.7	99.9
2268	1	41	9.4	56.0	4.0	32.0	5.0	3.0	0.0	234.	50.6	6.00	84.4	17.0	99.99	999.	0.	99.9	10.6
2269	1	42	6.5	53.0	7.0	30.0	2.0	8.0	0.0	246.	45.7	4.85	94.0	16.1	2.99	667.	1.	.7	99.9
2271	1	41	8.1	66.0	3.0	22.0	4.0	4.0	1.0	315.	46.8	5.18	90.5	16.0	99.99	999.	9.	99.9	11.2
2273	1	42	10.7	59.0	4.0	28.0	6.0	1.0	2.0	258.	52.6	6.02	87.4	18.3	99.99	999.	9.	99.9	99.9
2274	1	41	6.9	28.0	1.0	63.0	2.0	6.0	0.0	244.	44.2	5.15	85.7	14.9	99.99	999.	9.	99.9	8.5
2277	2	42	7.8	48.0	0.0	39.0	6.0	7.0	0.0	185.	38.2	5.12	75.0	12.3	1.78	975.	0.	99.9	7.5
2279	1	40	6.6	52.0	13.0	34.0	1.0	0.0	0.0	302.	44.2	5.52	80.0	15.1	55.37	711.	0.	.7	11.6
2548	1	41	7.1	54.0	5.0	31.0	6.0	2.0	1.0	226.	45.2	4.88	92.7	15.8	99.99	999.	9.	99.9	99.9
3023	2	55	8.4	55.0	1.0	37.0	4.0	3.0	0.0	310.	38.2	4.35	88.0	12.7	.03	603.	0.	99.9	11.6
3042	2	999	7.5	59.0	1.0	25.0	7.0	7.0	1.0	260.	40.5	4.58	89.0	13.7	.03	988.	0.	99.9	99.9
3049	2	8	99.9	99.9	99.9	99.9	99.9	99.9	99.9	999.	99.9	9.99	999.9	99.9	.36	999.	0.	99.9	99.9
3058	2	67	14.2	62.0	4.0	26.0	2.0	5.0	1.0	459.	36.9	4.30	86.0	12.5	7.58	576.	0.	99.9	4.8
5027	1	50	8.0	64.0	0.0	24.0	3.0	8.0	1.0	288.	49.0	5.44	90.0	16.7	1.17	966.	0.	1.2	12.9
5030	1	41	6.1	67.0	0.0	18.0	10.0	5.0	0.0	262.	43.4	5.32	81.6	14.3	99.99	999.	9.	99.9	14.3
5059	2	54	7.6	64.0	0.0	28.0	4.0	3.0	1.0	376.	41.8	4.47	93.4	14.3	99.99	999.	9.	99.9	99.9
5142	2	999	5.2	99.9	99.9	99.9	99.9	99.9	99.9	215.	34.5	3.37	102.4	11.7	99.99	999.	9.	99.9	99.9
9001	1	999	99.9	99.9	99.9	99.9	99.9	99.9	99.9	999.	99.9	9.99	999.9	99.9	99.99	999.	9.	99.9	99.9